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The Fifty-Fourth Meeting of the American Astronomical Society

By CURVIN H. GINGRICH

The pan-American characteristic of the American Astronomical Society was clearly brought out at the fifty-fourth meeting of the Society which was held at the University of Toronto on September 10, 11, 12, 1935. The sessions were attended by a large number of astronomers from the several Canadian Observatories and by an equally large number of astronomers from the several observatories in the United States. Moreover, a paper by Dr. Bernhard H. Dawson of the La Plata Observatory showed that the Society was not merely North-American but American in the most general sense of the term.

One might search far and wide and not find a more suitable place for such a meeting, and certainly no more appropriate place for a meeting of the Society at this particular time could have been selected. The peculiar appropriateness arose from the fact that an opportunity was thus afforded to the astronomers of America to see the magnificent David Dunlap Observatory about which they knew and in the construction and equipment of which they had felt a keen and enthusiastic interest for several years. For the erection of an observatory which will continue for centuries and whose principal instrument is a reflecting telescope having an aperture of seventy-four inches marks an epoch in the history of the science of astronomy and is an event deserving of recognition on the part of all workers in this field.

We are fortunate in being able to look forward to publishing in the near future a full description of this new and most completely and modernly equipped observatory, consequently we shall omit further details concerning it here. However, we cannot refrain from making the statement at this time that the David Dunlap Observatory stands as a fitting climax to the fruitful astronomical career of the beloved Professor Clarence A. Chant, who was made director-emeritus at the official opening of the Observatory in May; and also as an enduring monument to the person whose name it bears and to Mrs. Dunlap as well, whose generosity made the beautiful dream of Professor Chant become an imposing reality.

During the forenoon of Tuesday, September 10, many automobiles bearing astronomers and friends of astronomers were speeding toward Toronto. Most of these persons arrived in time for the luncheon in Hart House, the dining room, or hall, of which is strongly reminiscent of the halls of the several colleges of Oxford and Cambridge, and to

receive their assignment of living quarters for the next few days. Immediately after luncheon those who were strangers in the city studied the maps of the city which had been provided and sought verbal instructions as to routes before setting out for the David Dunlap Observatory where the first session for the reading of papers was scheduled to begin at two o'clock.

After the presentation of a number of papers, the president, Professor Henry Norris Russell, declared the session adjourned and reminded those present that a buffet supper would be provided by the ladies of the staff of the Observatory in order that all might remain for the evening and witness the working of the large reflector and have the privilege of observing certain celestial objects with it. Very soon thereafter the corridors, the offices, and the library were transformed into dining rooms and a bountiful supper was thoroughly enjoyed. By that time the sun was near its setting on the distant horizon and some thought it a favorable opportunity to watch for the green flash as the sky was perfectly clear and the horizon practically unobstructed.

After sunset the focal point for the group was the dome of the seventy-four-inch reflector. At the closing of an electric circuit the huge shutter was opened; in response to another circuit the dome was given the necessary amount of rotation; other circuits brought the telescope into position, showing the intricacy of the mechanical aids which the modern equipment of an observatory furnishes for the convenience of the observer. By this time a line had formed as near the eyepiece as possible preparatory to viewing the double star which was being brought into the field. After that some returned to the city for the night and others remained because they were promised a view of the moon and later of Saturn when these objects should come into favorable position. After the last of the visitors had departed the regular program of the observatory was resumed, because the night was such as to delight the diligent astronomer.

Wednesday was a full day and a complete day. It consisted of a morning session for papers at the Observatory; the taking of the photograph of the group; a sumptuous luncheon served by the ladies of Richmond Hill, a small community near the Observatory; an afternoon session for papers; and, finally, an afternoon garden party at Don-Alda Farm, the country home of Mrs. Dunlap.

The last event deserves more than mere passing mention. The Don-Alda Farm, consisting of some nine hundred acres, is located a few miles from the new observatory and a few miles from the city of Toronto. Upon arrival the members were graciously greeted and cordially welcomed by Mrs. Dunlap in the large and beautifully furnished drawing room of her expansive home. The day was pleasant and the guests moved out into the beautiful and extensive gardens. In addition to the members of the Astronomical Society and their friends numbering about one hundred, there were approximately an equal number of the

prominent citizens of Toronto present as guests of the occasion. An hour or more was spent in conversation and in wandering about enjoying and admiring the variety and the arrangement of flowers and fruits and shrubs. After this the scene was shifted to another part of the grounds, a large expanse of lawn so well cared for as to make it too a thing of great beauty. Here tents had been set up for the occasion and scores of servants were busily engaged in preparing and serving to the guests a great variety and abundance of delicious refreshments. Throughout the afternoon the strains of familiar music, furnished by a band of twenty-eight performers, attired in the full regalia of the Scotch Highlanders, filled the air. The afternoon was much too short and it was with great reluctance that the guests departed from scenes so entrancing and from hospitality so charming. Everyone left with a feeling of great indebtedness to Mrs. Dunlap for the delightful entertainment of the afternoon, and this, added to her munificent gift to astronomy, already referred to, has endeared her to all who were so fortunate as to share in the pleasure of the occasion.

The evening of this day, after dinner in Hart House, was spent in social and professional talk in the comfortable and spacious common room of Hart House.

On Thursday morning the session was held in the lecture hall of the McLennan Laboratory on the University campus instead of at the Observatory. At this session additional papers were read, bringing the total to the number of thirty-five, and the annual business of the Society was transacted.

At the opening of the business session, President Russell requested the audience to stand as a mark of respect to the memory of those members who had died since the preceding meeting of the Society. The secretary read the names of those, as follows: Mary Byrd, C. V. L. Charlier, William De Sitter, T. H. E. C. Espin, E. B. Frost, Elizabeth H. Gillespie, G. H. Hamilton, C. E. St. John.

The secretary then reported upon the statistics of the membership of the Society, showing that during the past year the Society had made a net gain in membership of thirteen, advancing from 546 to 559 members. The secretary announced that at this meeting ten persons were elected to membership. They are:

Emberson, Richard M., 1407 Bouchelle Ave., Columbia, Missouri.
Evans, John W., Harvard College Observatory, Cambridge, Massachusetts.
Hesthal, Cedric E., Ohio State University, Columbus, Ohio.
McKellar, Andrew, Dominion Astrophysical Observatory, Victoria, B. C.
Roach, Franklin E., McDonald Observatory, Fort Davis, Texas.
Seyfert, Carl K., Harvard College Observatory, Cambridge, Massachusetts.
Tabor, Lewis P., Roslyn House Observatory, Philadelphia, Pennsylvania.
Watson, Fletcher G., Jr., Harvard College Observatory, Cambridge, Mass.
Watson, Paul S., 425 E. Lake Avenue, Baltimore, Maryland.
Woods, John L., 4102 Westview Road, Baltimore, Maryland.

In addition to these, Professor Ejnar Hertzsprung, successor to Professor Willem De Sitter as director of the Leiden (Holland) Observa-

tory, was elected an Honorary Member of the Society.

The ballot cast for officers of the Society resulted in electing Professor Frederick Slocum as vice-president, Professor Raymond S. Dugan as secretary, Professor Frank C. Jordan as treasurer, and Dr. Annie J. Cannon, Dr. Robert H. Baker, and Dr. Theodore Dunham, Jr., as councilors.

The secretary announced that plans for future meetings had been definitely made as follows:

December, 1935, Princeton University.
September, 1936, Harvard College Observatory.
September, 1937, Williams College.

The committee on resolutions, consisting of Dr. Alice Farnsworth and Dr. Charles H. Smiley, which had been appointed at the first session, presented the following report and moved its adoption:

"At the close of this third meeting in Canada, we, the members of the American Astronomical Society, desire to record our grateful appreciation of the hospitality of the University of Toronto and, in particular, of the careful planning and untiring efforts of Professor Chant, Professor Young, and the other members of the staff of the David Dunlap Observatory in making this meeting an outstanding success.

"We desire also to thank the ladies of the United Church of Richmond Hill for their kindness in providing the excellent lunch on the second day of the meeting.

"To the Royal Canadian Yacht Club, we express our sincere appreciation of the excellent entertainment they arranged for us.

"In particular we should like to emphasize our gratitude to Mrs. David Dunlap, not only as the gracious hostess at the colorful garden party at Don-Alda Farm which will always remain with us as a pleasant memory, but also as the donor of the splendid David Dunlap Observatory which is in reality a gift to the entire world of science.

"Therefore, be it resolved that the secretary be instructed to inscribe these sentiments in the records of the Society and to send copies of this resolution to the persons concerned."

The report was adopted unanimously.

As there were no other papers and no further business, the president declared the fifty-fourth meeting officially closed. The members and friends remained, however, to participate in three additional social events. The first was a personally conducted tour through the various parts of Hart House which is most admirably adapted to the purpose of serving as a social center for the students of the University of Toronto. The second was an excursion, as guests of the Royal Canadian Yacht Club, to the island a short distance out in the lake on which its well appointed club house is located. Here the guests had the freedom of the

gardens, and tea was served on the veranda overlooking the lake and the sky-line of Toronto. The third was the Society dinner in the spacious dining hall of Hart House. On this occasion the Society was honored by the presence of Canon Henry Cody, the president of the University of Toronto, who briefly and very graciously extended the greetings of the University to the visitors and pointed out the tremendous potency in world affairs of the united efforts of the two great English speaking nations. For this event the tables were adorned with beautiful flowers from the gardens at Don-Alda Farm, a further indication of Mrs. Dunlap's interest in the success of the meeting.

Eighty persons signed the secretary's official list, although the number of members and friends in attendance was somewhat larger than that.

On the following morning the automobiles were again set in motion, now homeward bound, the occupants bearing nothing but most pleasant recollections of three days spent in the stimulating atmosphere of an important astronomical center and of one of the leading universities of the western hemisphere.

GOODSELL OBSERVATORY, SEPTEMBER 20, 1935.

Willard James Fisher
1867-1934

By LEON CAMPBELL

Willard James Fisher, physicist and astronomer, was born at Waterford, New York, on September 29, 1867, the eldest of the eight children of George and Ellen (Wright) Fisher. His earliest paternal ancestor to arrive in America was Anthony Fisher, who settled in Dedham, Massachusetts, in 1637. His father was a Protestant Episcopal clergyman, who was born at Franklin, Massachusetts, in 1839, and who died at Cambridge, Massachusetts, in 1926.

Dr. Fisher attended St. John's Parish School, at Stockport, Columbia County, New York, and graduated from Amherst College, Amherst, Massachusetts, with the degree of B.A. in 1892, graduating as a Phi Beta Kappa. He made a specialty of the classics, although he was much interested in the sciences, especially as a collector of nature specimens. He served as Principal of the Medway, Massachusetts, High School from 1892 to 1903, save for an interim of one year when, in 1895, he served as Assistant in Biology at Amherst College, and for two years, 1900 and 1901, when he carried on research in physics at Cornell University.

In 1903 he was appointed Assistant in Physics at Cornell and an Instructor in 1904, in which capacity he acted until 1908. He received his Ph.D. degree in physics from Cornell in 1908, having been elected to Sigma Xi in 1907.

In the years 1908 and 1909, he spent two semesters at Göttingen University, Germany, in pursuit of additional knowledge in physics, his specialty being the study of viscosity in gases. He resumed his position as Instructor in Physics at Cornell University in 1909 and resigned in 1912 to accept a position as Professor of Physics in New Hampshire College, where he lectured and carried on his experiments until 1915. In 1916 he was appointed Honorary Fellow in Physics at Clark University, a position which he held until 1918, when he accepted a position as Lecturer in Physics at Worcester Polytechnic Institute. Before the close of the World War he was appointed Assistant Professor and Acting

WILLARD JAMES FISHER
1867-1934

Head of the Department of Physics at the University of the Philippines, where he served until 1920. While there, he became interested in Lunar Eclipses, the Green Flash, and Low Sun phenomena, and contributed many valuable papers on these subjects.

During the year 1920 he took up his abode in Cambridge, Massachusetts, and was granted the use of the extensive Library of the Harvard College Observatory for his researches, especially on old lunar eclipses, the upper atmosphere, and related phenomena.

In 1922 he served as Acting Professor of Physics at the University of Hawaii, during which time he became mildly interested in variable star observing. Upon his return to Cambridge, late in 1922, he was appointed Research Associate at Harvard College Observatory, where he carried on pioneer work in the study of meteors as recorded on the Harvard Sky Patrol plates, devising special methods for the observation and reduction of the same. Through the aid of the newspapers he in-

augurated a system for the scientific recording and reporting of bright meteors, from which he was enabled to gather many valuable data regarding altitudes, direction of motion, and velocity of bolides and fireballs.

In 1928 Dr. Fisher received the additional appointment at Harvard of Lecturer in Astronomy, which, together with his Research Associateship, he held until the time of his death. He lectured mainly in Meteoric Astronomy and trained graduates in a line of investigation in which he became an outstanding authority. His laboratory experiments in connection with meteors included the microscopic examination of dust particles deposited in isolated places for evidence of meteoric dust. He also did much in the study of the distribution of iron and stony meteorites. His last paper, finished a few day before his death, dealt with the location of American iron meteorites to be found in abundance, only south of the region traversed by the Pleistocene ice sheet.

Dr. Fisher was also much interested in the history of astronomy and in the early American astronomers. His knowledge of the classics was of great help in this branch of investigation and he was most painstaking in maintaining his notes and card catalogue of historical and astronomical facts. Dr. Fisher's astronomical contributions are distributed throughout the various *Harvard Bulletins* and *Circulars* of the past dozen years.

In 1903 Dr. Fisher married Hannah Boyd Ware, of Millis, Massachusetts, who survived only a year.

Besides being a member of Phi Beta Kappa and Sigma Xi Societies, he was a Fellow of the American Association for the Advancement of Science, the American Physics Society, the American Astronomical Society, the American Association of Variable Star Observers, and the Bond Astronomical Club. He was a very active member of the two latter organizations, having served as Treasurer and Slide Curator of the AAVSO and as Slide Curator and Director of the History Division of the Bond Astronomical Club.

Dr. Fisher was a man of many attainments. He was meticulous in the arrangement and pursuit of his work and could, at a moment's notice, refer quickly and accurately to his voluminous card index of facts regarding many astronomical subjects. His versatility with languages and his wide knowledge of books and scientific literature was invaluable, not only to himself, but to his co-workers.

A man of strong convictions, he disliked working under conditions not completely to his liking. A born investigator, an ardent student, a scientist in the real sense of the word, a staunch and loyal friend, his passing, after a short illness on September 2, 1934, has left a gap in the ranks of noted scientists.

The day before his death—he had for some years been cautious in the care of his health—he left his office at the Observatory as though he

felt that his work was completed. He left for his home and, like the character in "Thanatopsis," it would appear that he went

"Like one who wraps the drapery of his couch about him
And lies down to pleasant dreams."

HARVARD COLLEGE OBSERVATORY.

The Paris Meetings of the International Astronomical Union

By S. A. MITCHELL

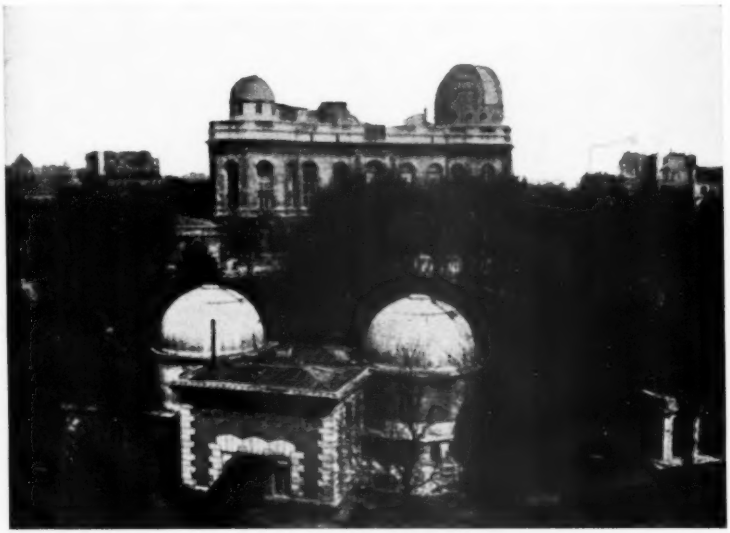
The fifth general assembly of the International Astronomical Union, convening in Paris, July 10-17, 1935, will go down into history as one of the most successful and most enjoyable meetings of the Union. Astronomers are most fortunate individuals. They are engaged in pure science and are not compelled to guard with jealous eyes any trade secrets or complicated formulae. To carry through large projects on the observations of the sun or the stars, coöperation is essential. Hence it has come to pass that astronomers, the world over, are a group of friends engaged in the interesting occupation of pushing forward the bounds of knowledge concerning the heavenly bodies. My own contacts with astronomers from other lands goes back to the year 1901, when on the other side of the world in Sumatra, in the common purpose of the observation of a total eclipse of the sun, I met astronomers from England, from the Netherlands, and from other countries. To foster many scientific projects depending on coöperation, a large fraternity, or family, met in Paris, the most beautiful city in the world, as the guests of the French astronomers and the French nation.

We from the New World with its lack of settled traditions love to visit the Old World to see its historical buildings and monuments and to take part in the more dignified formality of public functions. It was therefore most thrilling to witness the president of the French nation, M. Lebrun, enter the hall where the delegates were assembled, walking beneath the crossed swords of his guard of honor.

The sessions were held in Centre Marcelin Berthelot in rue Saint Dominique, a few blocks away from the Chambre des Députés. The quarters in this Maison de la Chimie were splendidly adapted for the purpose, with a fine hall for the sessions of the general assembly, smaller rooms for the meetings of the various commissions, commodious quarters for the astronomical exhibits, and a court yard where one could sit down with friends and discuss astronomical, or other, problems.

The meetings were opened on the morning of July 10 with the President of France in attendance. The Minister of National Education presided and delivered the first speech of welcome on behalf of the

French nation. He was followed by M. de la Baume Pluvinel, who spoke on behalf of the French astronomical committee, and by M. Esclangon, director of the Paris Observatory. All of these speeches made references to the brotherly friendship existing among astronomers. We from the United States were very pleased that the president of the Union, Dr. Frank Schlesinger, was made an officer of the Legion of Honor and we were equally proud when, in excellent French, he replied on behalf of the Union to the addresses of welcome. The addresses were followed by a brief lecture by A. Lambert of the Paris Observatory on the subject of the determination of exact time and its



THE PARIS OBSERVATORY

distribution from the leading national observatories. The interesting talk was beautifully illustrated by motion pictures. On the afternoon of the same day was held the first business session of the general assembly of the Union. On the following morning the commissions began their sessions, the meetings being concluded on the afternoon of July 17 by the final meeting of the general assembly.

Those of us who have been president or secretary of a large scientific or educational organization know from experience that the secretary, rather than the president, is mainly responsible for the successful conduct of the business of the organization. If, however, in addition, the president is a capable organizer, then the business is transacted without confusion or distraction and much of great value is accomplished. The 1935 business meetings of the Union were remarkably successful, chief-

ly on account of the efficient organization of the general secretary and the president. Professor Stratton as General Secretary has now had experience in three meetings of the Union, in 1928, 1932, and 1935. This year his attention did not have to be divided between the Union and the observation of a total eclipse of the sun. We regret that he refused the honor of succeeding himself as General Secretary.

This is not the occasion to make note of the reports of the different commissions or the actions of the General Assembly. One fact only may be mentioned, namely, that by unanimous vote of the eighteen countries represented the unit of subscription was fixed at 300 gold francs per year instead of 450 gold francs.

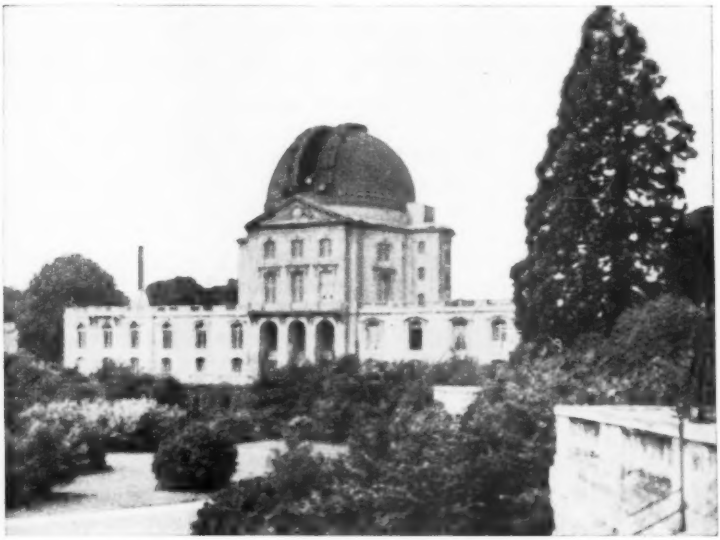
The French entertained us with lavish courtesy. On the evening of the first day of the Congress, there was a reception at the Paris Observatory. It was interesting to visit again this famous observatory, the main building of which was completed in its present form over 250 years ago, in 1682, in the reign of Louis XIV. After being received by Director and Madame Esclangon, we looked again on the historical instruments and walked through the rooms made famous by the work of such eminent astronomers as the Cassinis, Arago, Le Verrier, Lalande Delaunay, Mouchez, Tisserand, Loewy, the Henry brothers, and Baillaud. We walked out on the terrace illuminated by many electric lights; there we greeted friends, partook of a bountiful collation, and then inside the observatory tripped the light fantastic to the strains of a ten-piece orchestra.

At five in the afternoon of the 11th, the atronomers were given a reception by the municipality of Paris in the Hôtel de Ville. After addresses of welcome in the Salon des Arcades, we listened to the music of the band of la Garde Républicaine and to songs by Mlle. Jane Montange. Then we walked through the handsome rooms of the beautiful building and found the refreshment tables providing food and drink.

The following day, the 12th, there was an afternoon excursion by motor buses to Fontainebleau. After a drive through the picturesque forest we were escorted through the palace. On the return journey we stopped at the Hotel Savoy where tea and refreshments were served. To make us from the eastern part of the United States feel quite at home, a violent thunder storm was furnished to us before reaching Paris. On the afternoon of the 13th, again in motor buses, we were taken first to Versailles, then through the gardens and then on out to Meudon to the observatory which was established in 1876 by J. Janssen. The buildings and park date back to the beginning of the 16th century. Meudon reached its greatest glory in the reign of Louis XIV who built the Château neuf in order to install there the Court of the Grand Dauphin. In 1795 a fire detroyed many of the buildings but the Château neuf was spared. The war of 1870-71, however, completed the ruin of Meudon and the Château was burned and partially destroyed. This building, now surmounted by a dome, houses the astrographic telescope of 16

meters focal length. Like that at Potsdam, the tube has two objectives, visual and photographic, of 33 and 25 inches aperture, respectively. Deslandres succeeded Janssen as director in 1907 and when he retired in 1926, the observatory at Meudon was joined to the Paris Observatory with Esclangon as director.

The national holiday, July 14, fell on Sunday. The morning was spent in witnessing the parade of 50,000 troops of all branches of the service and the maneuvers of 600 airplanes. At night we were the guests of the Société Astronomique de France at a banquet served on the first stage of the Eiffel Tower. After the eight-course banquet with four wines (including champagne) we took elevators to the second stage



CHATEAU NEUF AT MEUDON

of the Tower and there witnessed the illumination and the fireworks. It was a beautiful sight to look down on the Place de la Concorde, Notre Dame, and, in the distance, Sacré-Coeur de Montmartre. It was a day of many thrills which was, however, not complete without taking a taxi to see the dancing in the streets which has made Bastile Day famous throughout the world.

On Monday, the 15th, a reception and garden party was given at the Elysée Palace. It was a memorable occasion to be able to meet one's friends in the beautiful gardens. After the reception line was broken, the distinguished democratic M. Lebrun came to the gardens and there engaged in conversation with the astronomers, both French and foreign.

On the night of Tuesday, July 16, a grand banquet and ball was given

in the Hotel Continental by the French National Committee on Astronomy. Each astronomer and his wife (if there was one) were assigned definite seats at the tables. This was a task of no little complexity for the reason that 400 people had to be taken care of. It is true that the astronomers are used to dealing with large figures. But astronomers are not stars. They are (at times) human beings with ideas of their own importance and surprise is felt (perhaps by the wife) when this importance is not properly recognized. In all of the entertainments the French astronomers had a most difficult task to take care of so large a group, but, due to the careful provision of the committees headed by M. Jules Baillaud and M. de la Baume Pluvinel, the business meetings, the excursions, and functions went off without a hitch to mar them.

Some of the English-speaking guests appear to have experienced a little trouble mainly through inexperience with the French language. One astronomer, so we were told, wished to go in swimming in a pond during one of the days when the temperature was high. He asked and obtained (so he thought) the permission of one policeman. But another policeman, discovering him enjoying himself, arrested him and took him and his clothes, separated from each other, to the police station. After many explanations and much palaver, the astronomer was permitted to don his clothes. Another astronomer with his wife and niece took a bus ride. He had provided himself with coupon tickets. On this particular day, the ride he wished to take to the end of the route required fifteen coupons for the three persons while nine coupons only remained in the book. This presented complications. After much discussion with the bus conductor, the astronomer was given a receipt for the coupons but instead of nine coupons the receipt was for five only. The attempts at explanations led to heated words. A kind French gentleman with his companion who spoke English recognized the difficulty the English-speaking astronomer was having with the language and came to the rescue. The interposition of the third party appeared only to add fuel to the heated argument with the result that the French gentleman struck the bus conductor. Much excitement followed; a policeman was called and in the prevailing confusion the astronomer was told by his new French friend that it might be wise if he and his family would quietly disappear from the scene of battle!

At the closing session, the Union accepted the invitation extended in behalf of Sweden by Professor Bergstrand to hold the sixth assembly in Stockholm in 1938. Professor E. Esclangon, director of the Paris Observatory, was elected president of the Union and the places of the three retiring vice-presidents are to be filled by Dr. W. S. Adams (Mt. Wilson), Professor O. Bergstrand (Upsala), and Dr. H. Spencer Jones (Greenwich). Dr. J. H. Oort (Leiden) was elected General Secretary.

From Canada and the United States, the following were in attendance at the meetings: Mr. and Mrs. W. S. Adams, Mr. and Mrs. Benjamin Boss (and daughter), Mr. and Mrs. Dirk Brouwer, E. W.

Brown, Leon Campbell, Miss A. J. Cannon, Mr. and Mrs. C. A. Chant, W. J. Eckert, Mr. and Mrs. C. W. Elmer, W. J. Green (and son), Miss Margaret Harwood, Captain J. F. Hellweg (and son), Mr. and Mrs. F. C. Jordan (and son), Mr. and Mrs. P. van de Kamp, Mr. and Mrs. M. S. Kovalenko, W. D. Lambert, A. O. Leuschner, P. A. McNally, A. van Maanen, Mr. and Mrs. W. F. Meggers, Mr. and Mrs. S. A. Mitchell, Mr. and Mrs. J. S. Plaskett (and son), James Robertson, H. N. Russell, Mr. and Mrs. Jan Schilt, Frank Schlesinger, Mr. and Mrs. Harlow Shapley (and daughter), Mr. and Mrs. Frederick Slocum, Paul Sollenberger, Mr. and Mrs. R. Meldrum Stewart.

LEANDER MCCORMICK OBSERVATORY, UNIVERSITY, VIRGINIA, AUGUST 30, 1935.

Some new Trends in Stellar Spectroscopy *

By OTTO STRUVE

INTRODUCTION

In discussing the history of stellar spectroscopy it is convenient to divide it into four somewhat overlapping stages of development. The first stage of early observations and of preliminary attempts to give a theoretical interpretation of stellar spectra started with Fraunhofer's work in 1814 and reached its culmination in 1850 with the famous theoretical work of Kirchhoff.

The second stage was devoted to a systematic classification of the spectra of the stars and involved the enormous task of measuring and identifying hundreds of stellar absorption lines. The beginning of this period may properly be fixed at the year 1863, when Huggins made his early spectroscopic observations. In 1868 Father Secchi announced that "all the stars in relation to their spectrum can be divided into four groups, for each of which the type of spectrum is quite different." To this period belongs the important work of Lockyer, Baxandall, and their associates at the Solar Physics Observatory in London. To it belongs also H. C. Vogel's classification in 1894, made on the basis of photographic observations with the Potsdam spectrograph. This period ended in 1924 with the publication of the ninth volume of the new Henry Draper Catalogue. Started at the initiative of E. C. Pickering, formerly director of the Harvard College Observatory, and carried out by Miss Annie J. Cannon, this catalogue contains accurate classifications for the spectra of approximately 225,000 stars. Each spectrum is assigned to one of the subdivisions of classes O, B, A, F, G, K, M, etc., the first corresponding to the hottest stars (30,000°) and the last to the coolest stars (3,000°). Mention should also be made of the work of Miss Maury at Harvard which, though not embodied in the Henry

*A paper presented at a joint meeting of Sections B and D of the American Association for the Advancement of Science, Minneapolis, June 25, 1935.

Draper Catalogue, has helped to establish many criteria of spectral classification.

The third important phase in stellar spectroscopy began in 1843 with Christian Doppler's publication *Über das farbige Licht der Doppelsterne*. Doppler's principle was successfully applied to astronomy by Vogel in 1871, and resulted in the measurement of the solar rotation, from the displacements of the spectral lines at the eastern and western limbs. In the years 1871 and 1872 Vogel in Germany and Huggins in England obtained the first measurements of radial velocities from stellar spectra. The visual determination of the Doppler shift of spectral lines measured relative to laboratory comparison lines was extremely difficult, and Vogel stated in one of his publications that there were occasions when many hours were spent in obtaining a single observation.

Systematic determinations of radial velocities were begun at Greenwich and yielded results which, though of relatively small weight, agree reasonably well with later determinations. In 1888 Vogel for the first time used photography in the determination of stellar radial velocities. A greatly improved stellar spectrograph was installed by Campbell at the Lick Observatory and the radial velocities of all stars brighter than magnitude 5.5 were measured at Mount Hamilton and at the South American station of the Lick Observatory. The most important result of Campbell's investigation was the determination of the motion of the solar system in space.

Approximately thirty-five years ago Frost inaugurated a program of radial velocity determinations at the Yerkes Observatory. This work resulted in the publication of catalogues of radial velocities of stars of classes B and A. Even more elaborate programs were started by Adams and his collaborators at the Mount Wilson Observatory and by Plaskett at the Dominion Astrophysical Observatory. Moore's general catalogue of stellar radial velocities contains 6,739 stars, 115 galactic nebulae, 18 globular clusters, and 90 extra-galactic nebulae. In the course of the radial velocity work at the various observatories several hundred spectroscopic binaries were discovered and many accurate orbits were determined. The patience of the observers was rewarded when Oort, in a discussion of all available radial velocities, confirmed Lindblad's prediction of a rotational motion in the entire stellar system. The radial velocities of the B-type stars were of particular value in Oort's discussion, and complete confirmation of his results has since been obtained by Plaskett and Pearce at Victoria.

The radial velocity epoch of stellar spectroscopy is by no means over. Radial velocity determinations of faint stars are now under way at several observatories, and minor investigations of spectroscopic binaries, convection currents in stellar atmospheres, etc., occupy a considerable share of the observing hours at the larger astronomical institutions.

In 1919 the fourth stage of development began. In that year the German physicist Eggert applied to the stars the theory of chemical

equilibria. In 1920 Saha published in the *Philosophical Magazine* his fundamental paper on the ionization theory in stellar atmospheres. His work was followed by the theoretical investigations of Darwin, Fowler, and Milne in England, and of Russell in the United States. In recent years Miss Payne at Harvard, and Adams and Russell at Mount Wilson have provided an adequate observational basis for the theory. Miss Payne's results, originally printed in numerous Harvard publications, were later summarized in her two monographs: "Stellar Atmospheres" and "Stars of High Luminosity." Russell has recently improved the theory and applied it to the study of the continuous absorption coefficient in the outer layers of the stars. Wildt, Swings, and especially Russell have extended the theory of gaseous equilibria to molecular spectra and have succeeded in explaining the more important band spectra in later type stars.

Broadening of Stellar Absorption Lines

Whenever a great advance is made in a field of science a number of phenomena are usually found which are not accounted for by the new theory but which come into prominence after the more essential features of the observational data have been satisfactorily explained by it. It is to such phenomena, resulting from the theory of ionization but not explained by it, that we shall now turn our attention. We shall discuss here only a few of the problems which have recently arisen. Some of these form a fairly connected story of the gradual progress in stellar spectroscopy and illustrate the slow and difficult process of searching for new truths.

Many astrophysicists will remember the almost hopeless feeling they experienced in examining a stellar spectrogram before Saha's ionization theory became known. Many lines had been satisfactorily identified by Lockyer and his associates but a much greater number remained unknown. For radial velocity determinations this lack of identification was not especially serious. In the later spectral types, and even in the earlier ones, enough identifications were available to obtain a satisfactory number of individual measurements. But the appearance of the stellar lines was so different from that of the laboratory comparison spectra that it was difficult to suppress a feeling of uncertainty. After all, what right did we have to apply Doppler's principle to hydrogen lines several hundred angstroms wide or to lines complicated by central reversals which often were variable and not even symmetrical? How reliable were conclusions based upon measurements of metallic lines ten angstroms or more in width having central absorptions of not more than ten per cent of the star's continuous spectrum?

The theory of ionization succeeded in explaining the more important differences between the spectra of different stars. Moreover, in doing so, it taught us an important lesson, for it clearly demonstrated that the ordinary laws of physics could be safely and successfully applied to the study of stellar spectra. With surprising success Fowler and Milne

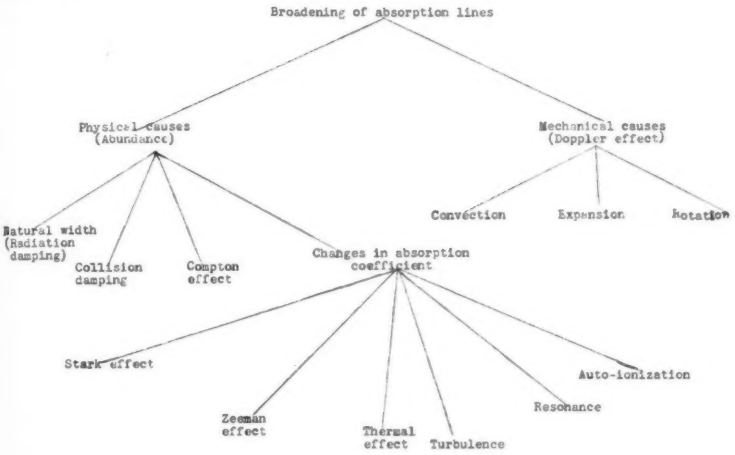
computed the maxima of the absorption lines in the sequence of stellar spectra and the basis of their work was a formula derived from the laws of physics. In spite of the many individual differences in the intensities and shapes of stellar absorption lines, all major features of the Henry Draper classification and of the giant and dwarf criteria were satisfactorily accounted for by two physical variables: temperature and pressure.

It was reasonable to expect that other phenomena not directly accounted for by the theory of ionization would also find their explanation in simple physical laws. Perhaps the most interesting of these phenomena consisted of an amazing variety in the general appearance or contour of stellar absorption lines. It had been known for many years that while most of the Fraunhofer lines in the solar spectrum are narrow, there are many stars which exhibit ill-defined broad lines. There are, for example, the hydrogen lines in the hotter stars, especially in those of class A, which often are several hundred angstroms wide; there are the lines of ionized calcium H and K which are extremely strong and broad in stars of intermediate and late classes; there are lines of neutral calcium ($\lambda 4227$), of sodium (D_1 and D_2), of magnesium and of iron, which appear distinctly broadened in the later types. Finally, there are many stars of classes O, B, A, and F which have diffuse lines of iron, titanium, helium, silicon, etc.

In order to explain the causes of the broadening of stellar absorption lines it was first necessary to classify the observational results. It was not certain that a single physical cause was responsible for the observed effects. Russell had suggested that in the spectrum of the sun great line width is invariably associated with great total intensity and that, consequently, the abundance of atoms producing a given line is in some manner responsible for the observed broadening. This was an important result, but the explanation evidently does not apply to the spectra of A and B stars having many weak but ill-defined and broad lines of iron, helium, etc. Accordingly, it seemed reasonably certain that more than one physical cause contributed to the observed effects.

For the purpose of making an exhaustive test of the various known sources of broadening of spectral lines it will be useful to have at hand a chart of the various effects known or suspected to exist in the laboratory. These sources of broadening have been labeled "physical causes." All of them depend upon the form of the absorption coefficient and are therefore directly related to the abundance of atoms. The most fundamental of these broadening factors is what is usually termed radiation damping. It is known from theoretical considerations and from laboratory experiments that a spectral line, no matter how carefully produced, is never infinitely narrow. There is a natural width for any spectral line and this width is explained in the classical electron theory as being due to loss of energy in the oscillating atom through radiation. If a pulse of light produced by an oscillating electron can be represented

by a Fourier analysis, then the loss of energy by radiation must produce a gradual diminution in the amplitude of the oscillation, and this, in the Fourier representation, corresponds to a broadening of the emitted radiation. The coefficient of absorption or emission thus derived is inversely proportional to the square of the value $(\lambda - \lambda_0)$ where λ_0 is the center of the line. The absorption coefficient, accordingly, is very nearly equal to infinity at λ_0 and decreases as the square of the distance from λ_0.



Collisional damping results from the sudden interruptions in the wave-trains produced by collisions. An infinitely narrow line would correspond to an infinitely long wave-train of constant amplitude. If the amplitude is "damped" we observe "natural widening"; if the wave-train is interrupted, we observe "collisional broadening." In the laboratory this phenomenon is very important. In the stars, however, the pressures are small and, so far, no definite evidence of it has been found.

The next effect is that discovered by A. H. Compton in X-rays. It is included here because some years ago Franck suggested it in order to account for certain phenomena observed in novae and in stars of the P Cygni type. In spite of Franck's elegant treatment, the theory evidently does not apply to stellar spectra, and McCrea has given a better explanation of the observations. There is, however, no reason why an accumulated Compton effect should not be observable as a result of slow propagation of light through a nebula. If the optical density of such a nebula is sufficiently great, a light quantum will collide many times with electrons and will gradually lose energy.

The last group of physical broadening factors is given under the title "changes in the absorption coefficient." We consider here various abnormal absorption coefficients, such as might result from ionic Stark

effect, Zeeman effect, turbulence, thermal agitation, resonance, and auto-ionization.

In addition to this entire group of physical causes the astronomer is obliged to consider various mechanical causes produced by Doppler effect. It is true that thermal agitation and turbulence have already been considered among the physical causes but these factors are obviously affecting the form of the absorption coefficient. These are convection currents in the atmosphere of the star, expansion of the entire atmosphere, pulsation, and rotation. Expansion has for a number of years been considered the main cause of the great widths of the emission lines observed in novae. Pulsation is generally regarded as the principal cause of radial-velocity variation in Cepheid variables. Convection currents have recently been discussed by Adams and his collaborators in connection with radial velocity determinations of individual lines in certain bright stars.

Observational considerations have led us to suspect that more than one cause of broadening is active. Accordingly, an attempt must be made to classify the observational material and to establish a number of groups, each of which is probably dominated by one broadening factor alone. Three such groups may be readily recognized: (1) A single cause seems to be responsible for the broadening of all spectral lines in such stars as Altair. The spectrum of this star is of class A and is, therefore, similar to that of Vega. Now in Vega the spectral lines are sharp and narrow. The lines in Altair, though agreeing in position and in relative intensity with the lines of Vega, are several angstroms wide and are extremely shallow and diffuse. Approximately one-half of all B-type stars, a considerable number of A-type stars, and a fair sprinkling of F stars, show the same general appearance. (2) The second group of stars is of an entirely different nature. In these we observe broad hydrogen lines and occasionally broadened lines of helium, but the broadening is not related to that of the first group and may occur in the stars of that group having either sharp or broad lines. (3) The third group consists of stars of later type in which the lines of calcium are strong and broad. In this group the faint metallic lines are invariably sharp.

Stellar Rotation

We now proceed to test the various broadening agencies in the three groups of spectra. Consider first group one: among hundreds of stars having broad lines we find some of spectral class B in which the lines of Si III, λλ 4552, 4567, and 4574 are present. These three lines form a multiplet of relatively simple structure. The intensity rules for such multiplets indicate that the theoretical laboratory intensities of the three lines should be in the ratio 5 : 3 : 1. This evidently means that five times as many atoms participate in the production of line 4552 as in that of line 4574. We select three stars in which the lines appear to be of different widths. In γ Pegasi they are very sharp and narrow. In

β Canis Majoris they are slightly broadened and in κ Orionis they are very broad and diffuse. We now measure the contours of the lines in all three stars and determine the total amount of energy absorbed in each line. Since the observed intensity of a beam of light exponentially decreases in intensity when passing through an absorbing medium, we can write the following simple equation:

$$i = i_0 e^{-\sigma_1 l}$$

Here i indicates the observed intensity, i_0 is the intensity before absorption took place, σ_1 the absorption coefficient per centimeter in the case of λ 4552, and l the length of the path in the absorbing medium. Since i/i_0 is known, we can compute from our observations the value of $\sigma_1 l$. Since l is the same for all three lines and since the absorption coeffiicent is proportional to the number of observed atoms, we conclude that the absorption coefficient for line 4574 is $\sigma_3 = \sigma_1/5$. Knowing the two absorption coefficients we can compute the ratios of the total absorptions of λ 4552 and λ 4574. This is found to be approximately 5 in the case of κ Orionis and 2.2 in the case of γ Pegasi. The observations actually give 2.2 for all three stars, agreeing therefore with the computation for the narrow-line star but disagreeing in the case of broadened lines. It can be shown that a similar disagreement will be found in all cases of broadening listed in our chart under the heading "physical causes." It is not possible to attribute the broadening of weak stellar absorption lines to a peculiar form of the absorption coefficient without seriously violating well-established laws of physics. Recourse must, accordingly, be had to the Doppler effect.

Since the Doppler-shift is always proportional to the wave length, $\Delta\lambda = V\lambda/C$, where V is the velocity of the light source, λ the wavelength and C the velocity of light. Accordingly, lines of similar intensity should have widths which are proportional to λ. For the stars of group one this relation was tested by the writer and was found to be true. An even more convincing set of measurements was recently made by Shajn. Accordingly, this necessary condition of Doppler broadening is fulfilled.

It is now necessary to choose between the four mechanical causes listed in the chart, namely, convection, expansion, pulsation, and rotation. We therefore turn our attention to the spectroscopic binaries of classes A and B. These binaries are known to consist of two separate stars revolving around one another in a period ranging from a few hours to many thousands of years. It is generally believed that in very close systems the rotational periods of the two components agree with their periods of revolution. The spectral lines of the binaries are not all of the same width. In some stars the lines are narrow and sharp; in others they are of the character of those observed in Altair. If the spectroscopic binaries are arranged in order of increasing period it is found that, in general, the line-width decreases as the period increases. The broadest lines are invariably seen in spectroscopic binaries that

have very short periods. Adams and Joy called attention to the fuzziness of the lines in W Ursae Majoris; Miss Maury found broad and diffuse lines in V Puppis and μ Scorpii. In these stars the absorption lines are so broad that they can hardly be measured; at the same time they are characterized by very short orbital periods. The conclusion seems justified that broadening of lines in spectroscopic binaries is correlated with orbital period. But this correlation has no physical sense. It is much more reasonable to suppose that, since orbital period and rotational period are identical, the true correlation is between line-width and period of axial rotation. We, therefore, definitely incline, at least in the case of spectroscopic binaries, toward axial rotation. Whether rotation is the only cause of broadening is not yet known, but there are reasons to believe that it is the most important one. Since the binaries are not spectroscopically different from ordinary stars of group one, there appears to be no reason why rotation should not be considered the main cause of broadening in all of these objects.

In 1929 Elvey obtained accurate measurements of line contours for many stars of early type, and the problem was to test the shape of these contours by means of the rotational hypothesis. The theoretical derivation of the contours for stars in rapid rotation had been published a few years earlier by Shajn and the writer. Consider the circular disc of a rotating star and let the axis of rotation be perpendicular to the line of sight. It is easy to show that all points on the disc which lie at the same distance from the axis must have the same radial component of their rotational motion. Accordingly, we consider the star disc to be divided into a number of narrow strips lying parallel to its axis. The radial velocity of all points in a given section will be the same. The central section has all of its motion at right angles to the line of sight. Consequently, it will contribute a portion to the composite line, which is undisplaced but which is diminished in depth with respect to the original line of a non-rotating star in the same proportion as that which the area of the section bears to the area of the entire disc. The diminution is, of course, caused by the continuous spectra of other sections, which in a rotating star overlap with the line of the central section. The two adjoining sections produce spectral components which are slightly shifted toward the violet and toward the red of the original wavelength. The depth of this contribution will again be proportional to the area of each section in terms of the area of the disc. Proceeding in this manner toward the other sections of the disc, we obtain a graphical integration of our original line, and the sum of the ordinates of the various contributing components will give us the theoretical contour of the rotational line. The total absorption of the broadened line measured as the area between the line contour and the continuous spectrum will be identical with that of the original unbroadened line. By means of this graphical procedure, Elvey was able to construct a number of theoretical lines corresponding to different rotational velocities and to

different initial lines such as would have been observed in non-rotating stars. The agreement in the shape of the theoretical contours with those observed by Elvey was most striking and served as an additional argument in favor of the rotational hypothesis. More elaborate investigations by Carroll for a few stars have confirmed these results: the character of the broadened lines is such as can only be produced by rotation.

While we do not exclude the possibility of effects other than those caused by rotation in stars of group one, it is interesting to investigate the problem further by making the express assumption that rotation alone is present. Should other causes of broadening be found in our later work, these results will have to be revised. In the meantime, however, we are able to gather data concerning the probable distribution of stellar rotational velocities. Perhaps the most surprising result is the fact that no star has a velocity at its equator in excess of 300 km/sec. Actual measurements have given values ranging all the way from zero to slightly more than 250 km/sec. It is, of course, obvious that the axes of the stars are not always perpendicular to the line of sight. There is probably no reason to assume that these axes have any preferential orientation in space. In making this assertion we think primarily of the orbit planes of visual and spectroscopic binaries. These have not been found to have a preferential orientation with respect to the Milky Way. Assuming, then, that the axes are distributed at random we are able to compute the theoretical distribution of apparent rotational velocities. Suppose for a moment that all stars rotate with the same velocity of 250 km/sec. It is clear that there will be very few stars having their axes in or near the line of sight and that the number will be a maximum for stars having axes approximately 90° from the line of sight. Expressed mathematically, we should say that the probability of observing a star with an inclination of its axis equal to α degrees is proportional to $\cos \alpha$. This would give us a curve with a minimum at 0 and a maximum at 250 km/sec. The ordinate represents the number of stars and the abscissa is the velocity of rotation at the equator, or rather its projection upon the line of sight. The true distribution curve of the observed rotational velocities shows a maximum at intermediate velocities. There is no resemblance in shape to the theoretical curve. One of our assumptions must, therefore, be in error. We naturally suspect that the stars do not all rotate with the same velocity of 250 km/sec. For example, our own sun has a velocity of rotation of only 2 km/sec and it is entirely reasonable to expect that the true rotational velocities of the stars will range from zero to the maximum of 250 km/sec.

We can arbitrarily assign the percentages of stars having true equatorial velocities within certain ranges. For each such range a curve is obtained which is similar in shape to the $\cos \alpha$ curve, but in which the abrupt drop occurs at a different value of V. The sum of all such curves should give the expected distribution. If it does not agree with the observed curve we proceed by trial and error until the percentages

are properly chosen to give the correct representation. This work has been carried out by Miss Westgate at the Yerkes Observatory.

In spectral class B approximately 27 per cent of the stars were found to have velocities averaging 50 km/sec, 53 per cent have velocities of approximately 100 km/sec, 15 per cent have velocities of 150 km/sec, and only 5 per cent have true velocities in excess of 200 km/sec. For the A stars a somewhat similar distribution of velocities was found, while for the F's the proportion of slower rotations is much greater. Finally, for stars of classes, G, K, and M the proportion having measurable rotational velocities is entirely negligible.

The result that all rotational velocities fall below the limit of 300 km/sec is evidently not accidental. It must have its origin in the balance between centrifugal force and force of attraction. The acceleration due to the atraction of our earth is 10 m/sec.^{2} The sun has a mass of approximately 3×10^5 times that of the earth. Since acceleration due to gravity is proportional to the mass and inversely proportional to the square of the radius, we find that the acceleration of gravity on the surface of the sun is 3×10^4 cm/sec.^{2} For an ordinary star of early type the mass may be considered approximately 5 times that of the sun, while the radius would be of the order of 3 solar radii. Accordingly, the acceleration of gravity on the surface of such a star would also be in the neighborhood of 10^4 cm/sec. The acceleration due to centrifugal force is equal to the square of the velocity divided by the radius. Assuming a maximum velocity of 300 km/sec and a radius of 2×10^{11} centimeters, we find for the centrifugal force a value of approximately $\frac{1}{2} \times 10^4$ cm/sec.^{2} Accordingly in such a star gravity is only twice as strong as the centrifugal force, and if radiation pressure is supporting an appreciable portion of the star's atmosphere, the balance between gravity and centrifugal force may perhaps be reached or even surpassed in such stars as Altair. For comparison we might mention that the ratio of the centrifugal force to the force of atraction is 1/300 in the case of the earth and 1/6 in the case of Saturn. Saturn has an oblateness of about 1/10. It would be reasonable to expect an appreciable rotational flattening in the case of rapidly rotating stars, but this effect has not yet been observed. One might suppose that an accurately determined contour would provide a test of the oblateness of rotating stars, but it so happens that the rotational contour produced by an elliptical disc is exactly the same as that produced by a circular disc. Incidentally, the period of rotation of the star Altair is approximately 6 hours. Contrast this with the period of the sun which is about one month.

It may seem surprising that stellar rotation was not discovered long ago. The reason for the delay may be found in the enormous weight carried by the opinion of H. C. Vogel who for many years dominated all thought in this field of astrophysics. In 1877 Abney had suggested that axial rotation might be responsible for the great widths of certain

stellar absorption lines. His paper was criticized by Vogel, who correctly pointed out that it was not sufficient to observe broad hydrogen lines, but that *all* stellar absorption lines should be broadened if rotation were actually present. Incorrectly, however, Vogel stated that there were no stars in which *all* absorption lines were broadened. He was apparently thinking of the broad hydrogen and calcium lines and it is, of course, obvious that these can not be explained by Doppler effect. There is no doubt, however, that Vogel must have known the spectrum of Altair and that he must have been aware of the broadening of all metallic lines in it. Incidentally, Vogel's paper contains the following statement in regard to the photographic method suggested by Abney: "It is quite impossible for me to understand how Mr. Abney can express the hope that the photography of stellar spectra could ever become of importance in the problem considered by him. For such faint objects as we generally find in the case of stellar spectra the method of photography will always be inferior to that of visual observation. Photography can be of importance only because it makes accessible the violet and ultra-violet parts of the spectrum which are difficult to observe visually and makes it possible to observe in these regions the stronger absorption lines. However, even on the most successful photograph only relative measures of lines among one another would be possible in regard to their width, so that no conclusions could be obtained in regard to rotation: the widths of lines on different photographic plates would depend upon the length of exposure, the sensitivity of the plate and the length of development."

What an irony that only a few years after this emphatic prediction Vogel himself introduced the photographic method into astrophysics!

The correct interpretation of the broadening influence in the stars of our first group has made possible a number of related investigations. There are among the early-type stars some in which we observe not only absorption lines but also emission lines of hydrogen, iron, magnesium, etc. The origin of these bright lines was not known and they were not explained by the theory of ionization. In fact, only a few years ago there was considerable uncertainty as to the region in the stars' atmospheres where the bright lines have their origin. Some astronomers were of the opinion that the emission lines are produced in the deeper and denser portion of the stars' atmospheres, others maintained that they originate in the normal Fraunhofer layer as do the absorption lines, while still others held the opinion that they come from extremely rarified outer nebulous shells.

The emission lines present a problem that is somewhat analogous to that just discussed in the case of the absorption lines. They, too, are not always sharp and narrow but often have appreciable widths. Measurements made principally by R. H. Curtiss established the fact that the widths of the hydrogen emission lines are proportional to the wavelengths. Earlier in this paper we mentioned a similar relation for the

broadened absorption lines and have regarded it as an argument in favor of Doppler effect. Similarly the suggestion, originally made by Curtiss and supported by Merrill and Wilson, and by the writer, that the emission lines are broadened by Doppler effect, appears reasonable.

An interesting result was obtained when the widths of the hydrogen emission lines were compared with the widths of the helium absorption lines. It appeared that there was a close correlation between the two types of line widths. This has been confirmed by Merrill at the Mount Wilson Observatory, and seems to prove that there is a connection between rotational velocity as determined from the absorption lines and the Doppler broadening of the emission lines.

One might be tempted to suggest that emission lines as well as absorption lines are broadened by rotation in the same atmospheric layer. But this is disproved by the fact that the actual velocity of rotation for the two types of lines is not the same. Consequently, if rotation is responsible for the broadening of the emission lines, their origin cannot be in the Fraunhofer layer. It is interesting, in this connection, that emission lines of different elements may give different velocities. Consequently, different elements give rise to emission lines in different layers. The absorption lines, on the contrary, all give the same velocity, and therefore originate in the same layer.

Perhaps we will be pardoned if we indulge in a brief speculation on the origin of the emission lines. Is it possible that they are due to gravitational instability in rapidly rotating stars? We have found before that stars like Altair are near the point of breaking up at the equator even if we disregard the effect of radiation pressure. Accordingly, it is not unreasonable to suppose that atoms are driven away by centrifugal force in the vicinity of the star's equator and that they form a ring or shell at a considerable distance from the reversing layer of the star. If this is true, all Be stars must be rotating with velocities near the limiting value $V = 250$ km/sec. Those having narrow lines would be explained by inclination. Unfortunately, the number of Be stars is not large enough to apply the statistical test of the $\cos a$ law to the frequency curve of stars having different observed line widths. It is not quite clear, however, why only *some* rapidly-rotating stars have emission lines.

The actual physical process which produces bright lines is called fluorescence; this has been investigated by Rosseland. Some stars show double emission lines, and these could be explained on the assumption of gaseous rings which rotate according to Kepler's laws around their central stars. McLaughlin has improved and enlarged this hypothesis and has combined it with the assumption of pulsating motions by means of which he is able to account for variations in the intensities of the bright lines. Finally, in a series of important papers, Gerasimovič has combined the rotational hypothesis with that of an expanding shell. According to him rotational instability is insufficient for the formation

of an outer shell and for various reasons "the revival of the old Laplacian ideas in a modern disguise can hardly appeal to the astrophysicist of our days." Instead, Gerasimovič suggests that "in the Be stars . . . this radiative dissipation is facilitated by stellar rotation working against gravity." Radiation pressure is primarily responsible for the outward motion of the shell. As soon as the shell is completely developed, the inward flux of radiation stops the outflow, and the latter can begin only after the shell has been sufficiently dispersed. By this mechanism Gerasimovič is able to give a quantitative explanation of the observed variations in Be stars.

In a rotationally broadened absorption line each point corresponds effectively to a definite portion of the star's disc. Accordingly, by observing different portions of a rotational contour we are able to gain information concerning the distribution of light on the apparent disc of the star. Suppose, for example, that a rotating star is not uniformly bright. In that case the rotational contour would show periodic variations in shape and the lines would at times be unsymmetrical. No such asymmetries have been observed in the lines of single stars. In double stars, however, the two components act as reflectors so that their inner sides are brighter than those portions which are not illuminated. This reflection effect has been known for a long time and has been investigated in the light curves of eclipsing variables. It is now possible to compute the effect of unequal light distribution in spectroscopic binaries and to predict the amount of asymmetry in the spectral lines of such stars. Mr. E. L. McCarthy of the Yerkes Observatory has shown that in some of the closest binaries, such as V Puppis and u Herculis, the predicted asymmetry due to the combined effect of rotation and reflection must be large enough to show in accurate measurements of their contours. The systematic error in radial velocity determinations from such unsymmetrical lines has been found to be relatively small and insignificant. Observations are now being planned to test the reflection effect in spectral lines.

An interesting modification of the rotational method of studying line contours is provided by the eclipsing binaries. In 1909 Schlesinger noticed that in certain eclipsing binaries the radial velocities were systematically in error just preceding the middle of the eclipse and immediately following it. The values, measured minus computed velocity, were positive before middle eclipse and negative after central phase. This effect was later discussed by Forbes and by Hellerich. It was thoroughly investigated in β Lyrae by Rossiter and in Algol by McLaughlin. All of these investigations were based upon spectrograms of small dispersion, and the unsymmetrical effect resulting from the fact that part of the star's disc is covered during eclipse by the fainter component merely produces a spurious shift of the spectral lines. Struve and Elvey have obtained high dispersion spectrograms of Algol with the Bruce spectrograph of the Yerkes Observatory and have measured the

unsymmetrical contours of the lines during eclipse. Computations made for several other stars indicate that the shape of the contour undergoes marked variations with phase. Thus, in stars having annular eclipses the lines may even become double near the central phase. The reason for this is that the central part of the line, corresponding to the middle section of the star's disc, is partly blocked out by the disc of the eclipsing star, the surface brightness of which must be fainter than that of the eclipsed star. Morgan has recently rediscussed the observations of Algol and has found that the lines are not only unsymmetrical as demanded by the simple rotational theory but are split into two distinct components. Apparently we are dealing with more complicated phenomena, caused perhaps by the absorption of light in the atmosphere of the eclipsing star.

We have seen before that in stars of rapid axial rotation the force of gravity is almost balanced by the centrifugal force. The question naturally arises: What will be the effect of this reduction in gravity upon the conditions of ionization and of excitation in the atmosphere of the star? One might expect that the reduced gravity at the equator would produce an earlier type of spectrum in the equatorial regions and a later type in the polar regions. Since in ordinary stars we observe the integrated spectrum of the entire disc we should expect that the spectrum of a rapidly rotating star would be a superposition of spectra corresponding to different absolute magnitudes. No conclusive observational test of this effect is as yet available but there are certain possibilities which have not yet been investigated. For example, it is clear that if we observe a stellar spectrum with sharp lines, the star must either be rotating slowly or must have its axis in the line of sight. The absolute magnitude effect produced by rapid rotation may perhaps serve to differentiate between inclination of axis and true velocity. Attention may also be called to the well-known absolute-magnitude effect discovered by Adams and Joy in spectral classes B and A. The more luminous stars were found to have sharper lines than the less luminous ones. Unless this result is merely caused by systematic errors in the spectral classification it must mean one of two things: Either the more luminous stars actually rotate more slowly than the less luminous stars, or the decrease in surface gravity due to rapid rotation simulates the absolute-magnitude effect which was observed at Mount Wilson. Consider, for example, a star whose temperature corresponds to class A0. If the rotation is slow the spectrum will appear perfectly normal and will be classified as A0, but if the star is in rapid rotation the ionization in its reversing layer will be increased. The helium lines will become visible and the star will be classified as B8 or B9, although its effective temperature, its proper motion, and its parallax would point to a lower absolute magnitude, namely that of a normal A0 star.

(To be continued.)

Planet Notes for November, 1935

By CLIFFORD E. SMITH

Note: All times, unless otherwise stated, are Central Standard Time.

The *Sun* will be moving in a southeasterly direction from the eastern part of Virgo, across Libra, to the western part of Scorpio. Its distance from the earth will decrease from about 92.1 to about 91.6 million miles. Its position on the first and last days of the month will be, respectively: R.A. $14^h\ 21^m$, Decl. $-14°\ 4'$; and R.A. $16^h\ 20^m$, Decl. $-21°\ 28'$.

The phenomena of the *Moon* will occur as follows:

First Quarter	Nov.	3 at	5 P.M.
Full Moon		10 "	9 A.M.
Last Quarter		17 "	7 P.M.
New Moon		25 "	9 P.M.
Perigee		8 "	5 A.M.
Apogee		19 "	12 P.M.

Mercury will be a morning object, moving with an easterly apparent motion from eastern Virgo, across Libra, to northern Scorpio. Until toward the end of the month, it will rise an hour or so before the sun. Its distance from the earth will increase from about 87 to about 133 million miles. The corresponding change in apparent diameter will be from about 7 to about 4.7 seconds of arc. Its positions on the first and fifteenth of the month will be, respectively: R.A. $13^h\ 14^m$, Decl. $-5°\ 38'$, and R.A. $14^h\ 23^m$, Decl. $-12°\ 28'$. On November 2 at 4:00 P.M. it will be at greatest elongation west of the sun ($18°\ 44'$). Conjunction with the moon will occur on November 25 at 6:00 A.M. (Mercury $4°.5$ N).

Venus will be a morning object in Virgo, rising about three hours before the sun. Its distance from the earth will increase from about 50 to about 70 million miles, and the corresponding apparent diameter will be 31 and 22 seconds, respectively. Venus will be in conjunction with the moon on November 22 at 1:00 A.M. (Venus $7°.4$ N).

Mars will be an evening object in northern Sagittarius. During this period it will set about three hours after the sun. Its distance from the earth will increase from about 160 to about 170 million miles, and its apparent diameter will be somewhat over five seconds of arc. Conjunction with the moon will occur on November 29 at 7:00 P.M. (Mars $2°.5$ S).

Jupiter will be near the sun in apparent position. Conjunction with the sun will occur on November 26 at 11:00 P.M.

Saturn will be an evening object in central Aquarius. It will appear toward the south at sunset, since quadrature east of the sun will occur November 26 at 6:00 P.M. Conjunction with the moon will occur at noon on November 5 (Saturn $6°.2$ S). Its apparent motion among the stars will be westerly until November 8 when it will become easterly again. Its distance from the earth will be about 880 million miles.

Uranus will be in Aries. It will be above the horizon most of the night hours, since opposition with respect to the sun will have occurred in October. Its distance from the earth will be about 1760 million miles, and its apparent diameter will be about 3.6 seconds of arc. The position of Uranus on November 14 will be R.A. $2^h\ 3^m$, Decl. $+11°\ 58'$. Conjunction with the moon will occur on November 9 at noon (Uranus $5°.6$ S).

Neptune will continue in Leo. Its position on November 14 will be R.A. $11^h\,12^m$, Decl. $+6°\,15'$. It will be a morning object, rising an hour or so after midnight. Its distance from the earth will be about 2840 million miles, and its apparent diameter will be about 2.4 seconds of arc. Conjunction with the moon will occur on November 19 at 7:00 P.M. (Neptune 6°.1 N).

Meteor Notes from the American Meteor Society

By CHARLES P. OLIVIER, President

As the writer has been absent for six weeks from Flower Observatory it is not possible to give the usual information about interesting observations that may have been recently sent in. So it will be necessary to confine these remarks to another phase of our work.

Taking advantage of a recent visit by the writer to Chicago, through the assistance of Mr. L. E. Armfield of Milwaukee, our able and energetic regional director, the first meeting of a group of A.M.S. members was held on August 10. Thanks to the generous coöperation of Dr. Philip Fox, director of the Adler Planetarium, one of the well-equipped lecture rooms of that building was put at our disposal for the afternoon. Meantime postals had been sent to those members who were presumably near enough to Chicago to make their presence possible. Also an invitation was issued to members of Astrolab and of the Amateur Telescope Makers in the city, and we were glad to have a fine representation from their group present.

The meeting was called to order by the writer at 2:30 P.M. and was opened by his giving a brief outline of the inception and early history of the A.M.S. As the meeting was informal, without a set program or papers, other members present then were asked to outline their work and the problems which they encountered therein. Mr. Armfield, by whose efforts the meeting had been made possible, gave an account of the phases of the work carried out by the group under his direction at Milwaukee.

He was followed by other members of his group. Particularly a most ingenious recording machine, which had been developed by a member, Mr. E. A. Halbach, after some years' work, was exhibited. This permitted four observers to record automatically the time of a meteor's appearance, or of several meteors for that matter, simultaneously and independently. It was really a species of quadruple chronograph. It could readily be used in other forms of astronomical work.

The writer took occasion to outline, particularly for the benefit of those present not A.M.S. members, the ways in which they could greatly aid us in observing the drifts of long-enduring trains and telescopic meteors. Both the methods of observation and the importance of the results were explained. Questions were then asked for and several people present took advantage of the opportunity to clear up certain points of difficulty in meteoric astronomy with which they had met. After further general discussion the meeting closed at 4:30 P.M. Altogether about thirty-five people attended, somewhat over a third being A.M.S. members.

While, as stated, the meeting was wholly informal, yet it appeared to arouse the interest of those present, it gave us a chance to become mutually acquainted, and in general served a useful purpose. Though, due to the wide scattering of our members, it has never been possible to hold a general or national meeting, yet the success of this group meeting makes us hope that in the future similar ones

can be held and eventually one for the whole Society. Certainly to the writer it was a great pleasure to meet persons with whom, in some cases, he had corresponded for years. And it is believed that the work of our Society will certainly prosper the more due to this first meeting of a large group of its members.

Contributions from the Society for Research on Meteorites

Edited by FREDERICK C. LEONARD, President, *and* H. H. NININGER, Secretary

"On the History of the Bolide of 1908 June 30," by L. Kulik*

Translated by LINCOLN LA PAZ *and* GERHARDT WIENS,
Departments of Mathematics and German, The Ohio State University

Near the end of the year 1926, the attention of [the staff of] the Mineralogical Museum of the Russian Academy of Sciences was called to the fact that, in the spring of 1926, I. M. Suslov,[1] during a gathering of the Tunguses on the upper part of the Podkamennaya Tunguska river, questioned many dozens of witnesses of the fall of the bolide of 1908 June 30. The testimony of these persons filled out in greater detail and fully confirmed both the information which was found in contemporary provincial literature at the time of the fall and those data which later were published by the author,[2] A. V. Voznesensky,[3] and S. V. Obruchev.[4] The data referred to were collected by the Meteorite Expedition of the author in the years 1921-1922 and by the Meteor Division of the Museum. Of the unpublished data concerning this fall which are preserved in the archives of the Meteor Division of the Museum, the greatest interest attaches to the accounts of the following persons:

The agent of the intermediate station Philimonovo, I. I. Ilyinsky, questioned by the author at this station on the 4th of October, 1921, related the following: "I have served at the flagstation Philimonovo since 1910. Before that I was stationed at the siding Lyalka, 14 versts† to the east of the station Kansk, on the old railroad line. The phenomenon described in the calendar[5] did not happen when I was at Philimonovo, but [when I was] at the siding Lyalka. I, myself, was a witness of it. Just at the time of the fall I happened to be on duty and was on the platform awaiting the arrival of freight train No. 92 from Kansk. Suddenly I felt something like a strong vibration of the air and heard a rumbling sound. I became very much confused, thinking that this was an earthquake or some other natural phenomenon. Train No. 92 was at that time 1.5 versts from Lyalka. The locomotive engineer on No. 92, Gryasnov, was so frightened by the rumbling sound and the vibration of the air that he stopped the train, fearing that it was derailed, and, after arriving at the siding, he even proposed that the train be inspected to see whether an explosion of some of the freight might not have oc-

*Published originally in the *Journal of the Russian Academy of Sciences*, 1927 A, pp. 393-8; read by the Academician V. I. Vernadsky on April 20, 1927.

Translated from the Russian of L. Kulik by Gerhardt Wiens, Department of German, The Ohio State University, at the suggestion and with the coöperation of Lincoln La Paz, Department of Mathematics, The Ohio State University. Translation communicated to the *C.S.R.M.* by Lincoln La Paz. Phrases inclosed in square brackets have been inserted by the translators.

†[One verst = 0.663 mile.]

curred. I saw no luminous phenomena and do not remember that any one in my vicinity spoke about such phenomena at that time. This phenomenon interested many. People assumed that a rock had fallen near the siding and many sought for it. There came many persons from the Polytechnical Institute at Tomsk, from Irkutsk, and from Krasnoyarsk, but they did not find the stone. Those stones which they found and supposed to be fallen ones turned out to be of local character."

The characteristic feature of this account is the strength of the sound, especially if we take into account the fact that, even along a straight line from the place of fall to Kansk, it is at least 600 km. The colossal strength of this air wave is still better characterized by the testimony of another witness, E. E. Sarychev, who was questioned by D. F. Landsberg in the town of Kansk on the 11th of October, 1921. E. E. Sarychev related: "I was a master tanner. In the summer (closer to spring than to autumn), at about 8 o'clock in the morning, I washed wool with my workers, on the bank of the river Kana, when suddenly there was heard first a noise like that from the wings of a flushed bird, the noise passing from south to east toward the village Antsyr, and along the river there came up against the current a wave like a surge [tidal bore]. After this, occurred a sharp clap, and after it, dull reverberations like subterranean rumblings. The clap was so strong that one of the workers, Yegor Stepanovitch Vlassov (he is now dead) fell into the water. With the occurrence of the clap, there appeared in the air something like a luminous mass, of a spherical form, in dimensions about half that of the moon, with a bluish tinge, which flew swiftly in the direction from Philimonovo to Irkutsk. After the luminous mass, there remained in the sky a trail in the form of a bluish streak, extending along almost the entire path and then gradually disappearing, beginning at the end [terminal point]. The luminous mass, not yet having broken up, disappeared behind the mountain. The duration of the phenomenon I could not ascertain, but it was very brief. The weather was absolutely clear and still."

It is interesting to note that the surge on the water [bore] was pointed out also in other localities.

The newspapers (of the village Kezhma on the Angara[6] and of Nizhne-Ilimsk) carried reports at the time of publication, subsequent to the fall, concerning the fact that the air wave of this meteorite threw people off their feet. To explain this by the high degree of nervous sensitiveness of man is hardly possible. Mrs. E. Rukosuyeva, for instance, related in her answer of April 15, 1922, to the author's questionnaire, that her husband, E. P. Rukosuyov, at that time was working near the village Shitkino of the district of Kansk. They were carting earth with horses in road construction. There were about twenty workers and several horses. As a result of the noise (thunder rumbles) "several horses fell, but several remained on their feet."

The degree of expansion of the sound wave is pictured still more overwhelmingly by the account of the former Director of the Krasnoyarsk Museum, A. Y. Tugarinov, who related the following to the author in the city of Krasnoyarsk on November 17, 1921: "In the year 1908, on the 17th of June (old style), I was in the Turukhansk region, about 40 versts in a straight line from the Yennissey [Yenisei] river, in the marshy forest along its left bank, approximately opposite the village Vereschagina. It was a quiet, sultry summer morning, entirely cloudless. It was between 6 and 7 o'clock in the morning. I noted only one phenomenon: In the east, I heard three or four consecutive dull claps reminding

one of distant artillery discharges. The sounds were so distinct, so clear, and so peculiar that it was impossible not to take note of them, and for this reason the occurrence was noted down in my diary. Then when soon afterwards (in about two or three weeks) we came to Turukhansk, there too they talked about it. I could see a corroboration of it also in the testimony of the witness P. T. Voronoff (we discussed the matter in 1921), who just then was with the expedition to the Kamennaya Tunguska. However, he took these sounds to be thunder and his only reaction was astonishment that there could be thunder with a perfectly clear sky."

A whole series of witnesses from localities closer to the place of the fall emphasize the complication of the sound phenomena, and, moreover, report about the uprooting of woods by the wind blast and the destruction of many reindeer belonging to the Tunguses. Thus, a member of the management of the Consumers Association of Kezhma on the Angara, I. K. Vologzhin, reported the following to the author in the city of Krasnoyarsk on the 21st of November, 1921: "In the year 1908, on June 17, I was about 20 versts above the village Kezhma (along the river Angara) in the market village Chirida. In the morning we examined our fishing nets. It was a bright morning. There was not a cloud. With me was an old man. We heard—a clap, then—another one, and gradually the thunder rumblings began to diminish toward the north. In the winter the inhabitants of the village Kezhma, who traded around the Podkamennaya Tunguska (Khatanga),* reported that the Tunguse Ivan Ilyich Ilyushenok related that at the time of this occurrence, in the locality where they were wandering between the Podkamennaya Tunguska and the Nishnaya [lower] Tunguska, a strip of forest was uprooted by the pressure of the air and several of his reindeer were killed. People suppose that the place of fall is in the region between the Podkamennaya Tunguska and the Nishnaya Tunguska."

I. I. Pokrovsky (city of Yennisseisk [Yeniseisk], former financial inspector) corroborates the rumor about the breaking down of the forest by a wind blast; in a letter to the author under date of April 21, 1922, he writes: "According to the testimony of the Tunguses, the falling of the meteorite was accompanied by an unusual atmospheric perturbation which caused a terrible destruction of the woods over a large area."

More concrete data about the destruction of the forest by a wind blast are furnished by an inhabitant of the village Krasnoyarovo, of the district of Kirensk, of the government of Irkutsk, V. M. Arbatsky, in answer to a questionnaire of the Meteorite Expedition. After giving a description of the phenomenon, containing nothing new, he adds: "In the region reached by going from the small river Tunguska along the little river Ayan for about 15 versts, I noticed a broad strip of completely uprooted forest, extending along the road for about one verst. As for the more remote regions [*i.e.* farther away from the road] I have no knowledge."

Characteristically, all these tales about the thunder-claps, the destruction of the forest by a wind blast, and the killing of the reindeer, are mirrored in the artless letter of an eye witness of the occurrence, I. V. Kolmakov (co-operator in the village Panovskoye on the Angara). In answer to the request of the author, he wrote the following, on February 10, 1922: "Indeed, I was in the marshy for-

*[As Kulik has noted elsewhere, this local substitution of the name *Khatanga* for the name *Podkamennaya Tunguska* is objectionable, since another large river flowing into the Arctic Ocean already bears the name *Khatanga*.]

est north of the Podkamennaya Tunguska in the region of Boykit at some distance from the village Angara, Kezhm township, Yennissey district, 600 versts from the village Panovskoye; and being there in the year 1908, about the middle of June, at 8 o'clock in the morning, there happened an unbelievable phenomenon, similar to the sound of cannon discharges and to the crashing of loud thunder which in turn caused a vibration of the earth. The day was at that time clear with the sun shining; this [noise] continued for about a quarter of an hour. During the time of driving to the village we had the opportunity to talk with several people about the occurrence and it turned out that this phenomenon happened at the same moment over a colossal distance. Moreover, I, personally, talked with a Tunguse about this [event]. The latter related the following: 'Along that same river Tunguska in the region of the junction with the Chamba over a distance of 350 versts from Panovskoye, during the time of this thunder, about a thousand of the Tunguses' reindeer were killed and the remainder of the reindeer badly injured, and also the natives themselves suffered from the heavy shake [concussion], and, moreover, in a region of radius approximately 70 versts, all the forest was destroyed and right there by the shock a spring was opened in the earth which disappeared after several days, but the place of outflow of the water was not examined by the natives. All that which is contained herein I affirm under oath.'"

In this tale, much, of course, is exaggerated, but in any case in it is found a corroboration of the events narrated before; the concussion, the breaking down of the forest by wind, and the destruction of the reindeer; moreover, special attention should be given to the creation of a hole in the region of the river Chamba, which agrees with the statement of I. M. Suslov.

Slightly different in the topographical sense, although they agree in general characteristics, are the statements made to the author on January 19, 1924, by the engineer V. P. Gundobin, who lived for two years near the Podkamennaya Tunguska, close to the region of fall of the meteorite. Interesting is the new detail in them about the destruction of a mountain: "I first heard about the meteorite of 1908," he relates, "in the month of February, 1921, in a conversation with Ivan Andreyevich Kochergin, an inhabitant of the village Schitkina, on the Tayshet tract, province and district of Yennissey. This information was as follows: Kochergin maintained that he was the witness of an earthquake accompanied by roaring thunder and by luminous phenomena. This 'earthquake' showed itself in the oscillation of the water in the lake: a wave arose. The second time I heard about this same phenomenon was later in April, 1921. It was from Tunguses who said that they heard a heavy roaring thunder which frightened them terribly; they, also, spoke of the destruction of reindeer. In the month of May, in the same year, I met the expedition of A. J. Tugarinov in the settlement (factory) Voskoba on the Podkamennaya Tunguska. A. J. Tugarinov advised me to direct my attention to the tales of the population about the phenomenon, since he himself had been a witness of it. After his departure I began to collect narratives. I succeeded in obtaining some reliable information from two of my laborers in the salt works on the Podkamennaya Tunguska. One of them, Rudenko, in 1908, was in the gold fields on the Lena and the other worked in the gold fields in the marshy forests of the southern Yennissey. The first laborer related that in the morning, on his way to work, he saw how something flashed, and so vividly that all the miners turned their attention to it. The second worker remembers that this was at 6 o'clock in the morning; he saw a flash, after which the doors in the rooms opened and the cabinets began to shake as if from an earthquake. All this was accom-

panied by a roaring thunder. He thought some explosion had occurred. Both laborers indicated the month and the day of the month. Their data agree with those of the Meteorite Expedition. After this, I met with Ivan Kornilovich Vologjin who brought me the questionnaire of the Meteorite Expedition. Then I began to inquire around among the local peasants. Everyone of them to whom I turned for information distinctly remembered this case of 'thunder from the clear sky.' Among these narratives the most interesting fact is disclosed in the recital of Ivan Vasilyevich Kokorin. He, at that time, was traveling in a boat on the Angara. This [meteorite fall occurred while he] was at the Mursk rapids at 5 o'clock in the morning of June 17, 1908. He was the steersman of the boat. His impressions were these: 'In the north flashed up a bluish light and there passed in the sky (from the south) a fiery ball considerably larger than the sun, which left behind it a wide luminous streak; thereupon there occurred such a cannonade that all the laborers that were in the boat rushed to hide themselves in the cabin, having forgotten about the danger which threatened from the rapids. The first concussions were weaker, but they increased in strength. The sound phenomena lasted, he estimated, from three to five minutes. The strength of the sounds was so great that the oarsmen were entirely demoralized and it took great efforts to return them to their places on the boat.' From the same I. V. Kokorin, I learned that the sounds were still greater on the Podkamennaya Tunguska. Having come to this river, Kokorin met two Tunguse brothers (one of them was Ivan Ilyich Onkoul). These related that something flew down from the sky and broke down the forest, after which a fire started in which twenty of their 'reindeer' were consumed. It is necessary to point out that the expression 'reindeer' is used also as a synonym for that amount of flour which one reindeer can carry [as a permanent load] on a trip; so that the expression 'twenty reindeer' may be understood in either the literal or the figurative sense, that is, that a shed containing from 80 to 100 puds* burned down. The wandering region of these Tunguses who live on the Kezhma is situated in the district of the river Ognia, a tributary of the river Vanovara. This phenomenon occurred in the administration of Prince Dushinchi whom I saw and who affirmed that actually at the time previously referred to, there was a fire on the river Ognia, that a mountain was shattered to pieces there, and that this region is considered accursed by the natives. From inquiries made of other Tunguses, the idea presented itself that along the river Taimur (district Vanovara), a region two or three versts in extent was strewn with rocks [at the time of the fall], at which time several families and many reindeer perished. On the Angara in the village Chadobetz (Zaledeyevo), which stands on the river Chadobetz, during my return to [European] Russia in March, 1922, I heard from my landlord that he, on said clear summer morning, on going out into the yard, saw in the north a vivid flash and [heard] ensuing heavy concussions (somewhat) resembling an artillery cannonade. Domestic fowl (hens) became confused, and the horse which he held by the bridle tore away from him."

Almost simultaneously with the report of V. P. Gundobin, the author received a letter dated February 2, 1924, from the geologist and co-worker in the Krasnoyarsk Museum, A. N. Sobolev. His account gives a vivid picture of this mighty phenomenon and completely agrees with the data of I. M. Suslov: "A certain N. N. Kartashev working in the summer on the Podkamennaya Tunguska reports: 'According to the story of a Tunguse Ilya Potapovich [no surname], who lives on the river Tetera in the upper regions of the Podkamennaya Tunguska,

*[One pud = one poud = 36 lbs.]

long ago (about 15 years), there lived on the river Chamba his brother [who is now an old Tunguse and who hardly speaks Russian, and who now lives on the Tetera with Ilya Potapovich and whom N. N. Kartashev saw]. Ilya Potapovich reported that there [on the river Chamba], once upon a time, occurred some sort of terrible explosion with noise and wind. The power of the explosion was so great that, on the river, for many versts along both sides, the forest was broken down in one direction. The reindeer skin tent of his brother was thrown down, the top of the tent was carried away by the wind, the brother was deafened, and the reindeer were thrown into a panic. On regaining composure, he was not able to round up but very few of the reindeer. All this so worked upon him that he was sick for a long time. In the broken-down forest at one place a hole was formed out of which flowed a little brook into the river Chamba. Through this locality [*i.e.*, where the woods were broken down] formerly went a Tunguse road; now it is abandoned, because it turned out to be all obstructed [by the broken down trees] and impassable, and, besides, for the reason that it caused horror in the Tunguses. At the present time, there are Tunguses on the river Chamba who might conduct one to this place. From the Podkamennaya Tunguska to this place and back on reindeer takes three days [there is here a disagreement with other statements; according to the accounts of the Russians, it is only six or seven versts to this place].' According to N. N. Kartashev, one cannot but believe this narrative of Ilya Potapovich. While narrating, he turned to his brother who had experienced all [that he related]. The brother became excited, and with difficulty said something in Tunguse to N. N. Kartashev, knocking with his stick on the poles of the tent, and on the roof, and motioning with his hands, endeavoring to show how his tent was blown down. It seems that even to this time the memory creates a strong impression on this old man's mind. At present, the place of fall may be recognized by the young woods which have grown up here in the midst of the surrounding old marshy forest."

It is to be regretted that this chief witness of the catastrophe is now dead; this fact will necessarily be of influence on future research into the circumstances of the fall. At present it is difficult to draw definite conclusions from the available material, since a difference of opinion is unavoidable among different witnesses with respect to the naming of geographical points and native families; and, naturally, the identification of the place of fall by the Tunguse witnesses is influenced by their respective locations. Future research is made more difficult also by the fact that eighteen years have passed since the time of the fall and that the places where the trees were blown down have been covered with new growth.

References

[1] *Guide to Natural Science* [*Mirovedenie*], **16**, No. 1, 1927.

[2] L. A. Kulik, "Account of the Meteorite Expedition," *Journal of the Russian Academy of Sciences*, 1922, p. 391. The same author published also the article, "The First Meteorite Expedition," in the *Guide to Natural Science*, 1923, No. 1 (44), p. 6.

[3] A. V. Voznesensky, "The Fall of the Meteorite of June 30, 1908, on the Upper Part of the River Khatanga," *ibid.*, **14**, No. 1, p. 25, 1925.

[4] S. V. Obruchev, "Concerning the Place of Fall of the Large Khatanga Meteorite of 1908," *ibid.*, **14**, No. 1, p. 38, 1925.

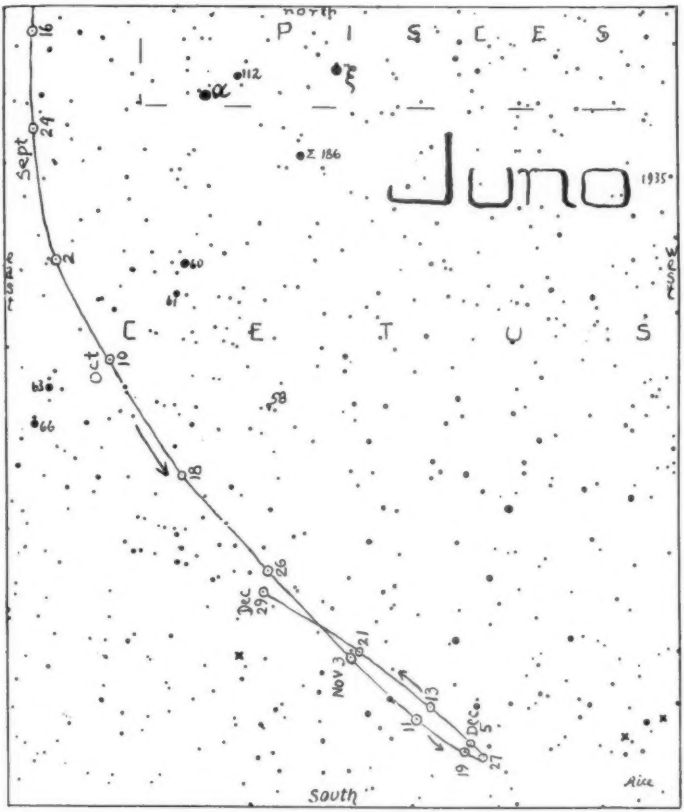
[5] L. A. Kulik, "The Lost Philimonovo Meteorite of 1908," *ibid.*, **10**, No. 1 (40), 1921.

[6] The newspaper *Krasnoyaretz*, 1908, No. 53, for the date July 13, 1908.

Asteroid Notes

By HUGH S. RICE

Certain observers are maintaining high interest in minor-planet telescope work, as proved by their assiduous observing with small instruments. It is gratifying to know that some observers do find such things a pleasure. Typical of these persons is Mr. Morgan Sanders, of Baltimore, who is always anxious for new asteroid paths, that he may conquer same with his small refractor. Using the Vesta chart published in this department he has made 70 observations up to September



16. He reports that it has followed the predicted path perfectly. One of the less common asteroids, 11 Parthenope, was also picked up by Mr. Sanders, from a diagram of its 6-weeks' course among the stars, sent by the writer; and it was observed on 36 nights this summer. It likewise followed the chart perfectly.

In this connection, one of the reports of the professional asteroid headquarters, the Astronomisches Rechen-Institut, records an observation of Par-

thenope by de la Villemarqué in Zô-sè, China, in which it was found to follow the ephemeris to less than a tenth of a minute in R.A., and less than a tenth of a minute in Decl., that is, there was no discrepancy between observed and computed place. We note also that 433 Eros has been photographed at Bucharest and Tokyo, and found to have been following its predicted orbit with similar precision. Many planetoid photo observations are made each month, and the plates are "reduced," so that the records of the exact positions of these miniature worlds may be sent to the clearing house in Germany. Certain observatories specialize in this work, for example, the Union Observatory at Johannesburg, Union of South Africa, from which place 15 long lists of observations of asteroids made between June 1 and September 15 have been sent to the Rechen-Institut and been sent out in bulletins from the latter place.

Under "Planetenbenennungen" the R.-I. authorities announce that the last asteroids to date, to receive their permanent names are 1300 Halleria, discovered by Reinmuth; also 1295 Deflotte, 1296 Andrée, and 1301 Yvonne, the last three all named by Boyer at Alger-Bouzaréah.

Planet 4 Vesta is still to be seen in Aquarius, and it is still retrograding until about October 20, when it turns and begins its regular eastward course. The writer picked it up in clear New England skies easily, several times, together with Juno and Parthenope, with the aid of Zeiss binoculars of 50-mm aperture. Along Vesta's track (which appeared in the June-July issue of this periodical) are several stars that should form conjunctions with the asteroid; some of them seem to lie precisely in the path of the planet. In October Vesta is about $7^{M}.0$.

Asteroid 3 Juno, whose opposition occurs on October 25, can be found along the path as laid out in the accompanying chart,—somewhat south of α Piscium, the best naked-eye guide star for the object. This year Juno is brighter than usual, assuming a magnitude of $7^{M}.2$ at its best, at opposition, when it will be seen to be traveling southwest. At this time the "log Δ" being recorded as 0.0249, we infer the distance of Juno from the earth to be about 165,000,000 miles—less than half the distance from the earth to the mean opposition distance of Jupiter, the next planet beyond!

The only other fairly bright minor planets convenient for observation between October and the end of the year are 8 Flora, of $7^{M}.9$, and 16 Psyche, of $9^{M}.1$; ephemerides of these will be supplied upon request.

American Museum of Natural History, New York, Sept. 24, 1935.

Variable Stars

Monthly Report of the American Association of Variable Star Observers for July and August, 1935

We welcome observations from the following new contributors: Messrs. Cameron, of Bellerose, L. I., New York; Katz, Keuziah, and Sidoff, of Milwaukee, Wisconsin; Franklin, of Rocky Point, L. I., New York; Kernan, of Chicago, Illinois; Treadwell, of Arlington, New Jersey; Weiss, of Magill, South Australia; and Mr. and Mrs. Sasabe, of Kobe, Japan.

This is the largest report on record and includes observations received be-

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

June 0 = J.D. 2427954; July 0 = J.D. 2427984; August 0 = J.D. 2428015.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
SS CAS			T CAS			R AND			U CAS			— CAS			W CAS		
000451			001755			001838			004047a			004746b			004958		
947	10.3	Cm	962	10.9	Pt	997	6.5	Hb	962	12.8	Pt	962	10.4	Pt	003	8.8	Dh
964	11.7	Fc	965	11.0	Cm	002	6.8	Hm	965	12.4	Cm	965	11.2	Cm	007	8.9	Dh
965	11.4	Cm	974	10.0	Hf	004	6.8	Jo	987	11.5	Cm	987	11.0	Cm	008	8.8	Jo
969	11.4	Ra	975	10.0	Bu	007	6.8	Dl	989	11.6	Pt	989	11.0	Wa	009	9.3	Hf
971	11.7	Fc	975	8.1	Mc	008	6.9	Kp	000	10.3	Fc	018	10.7	Kn	009	9.1	Dh
977	12.5	Jo	977	10.7	Jo	008	6.9	Jo	003	10.1	Fc	020	10.8	Cm	009	9.3	Wd
979	12.4	Wa	982	10.1	Jo	009	6.8	Hm	004	9.9	Jo	W CAS			010	9.1	Dh
980	12.4	Hk	982	10.1	Bu	009	6.9	Cr	006	9.8	Hf	004958			012	9.0	Bu
982	12.4	Jo	985	9.5	Jo	010	7.0	Dl	008	9.8	Jo	947	9.5	Cm	012	9.4	Dh
983	12.3	Dh	986	9.9	Bu	010	6.9	Hf	015	9.0	Jo	962	9.0	Pt	013	9.4	Wm
983	12.5	Ra	986	10.1	Gy	010	6.9	Hm	017	8.8	Jo	962	9.3	Dh	013	9.2	Dh
985	12.5	Jo	987	9.6	Cm	011	6.9	Hm	018	8.6	Kn	965	9.3	Cm	013	9.4	Fd
987	12.2	Cm	987	8.7	Mc	011	7.0	Dl	020	8.9	Cm	965	9.2	Dh	014	9.5	Dh
988	12.2	Dh	988	9.2	Jo	012	7.0	Dl	023	8.7	Jo	969	9.0	Dh	015	9.2	Dh
990	12.5	Ra	989	9.1	Pt	012	6.9	Hm	026	7.7	Pt	969	9.2	Ra	017	8.7	Jo
993	12.6	Dh	990	9.5	Mn	013	6.9	Hm	RW AND			974	8.9	Hf	018	9.0	Kn
995	12.6	Jo	994	9.4	Wd	013	7.1	Dl	004132			975	9.0	Bu	020	9.6	Cm
996	12.5	Dh	995	10.0	Jo	013	7.1	Wm	962[	12.6	Pt	975	9.0	Dh	020	9.2	Wp
997	12.4	Dh	999	9.4	Bu	013	7.0	Fd	985	12.4	Jo	975	9.3	Ra	026	8.6	Pt
000	12.5	Dh	001	10.0	Jo	013	6.8	Kp	994[	12.6	Gy	976	9.0	Lf	U TUC		
001	12.8	Dh	002	9.4	Mn	013	6.9	Ca	009	11.4	Gy	976	8.9	Dh	*005475*		
003	12.5	Dh	004	10.1	Jo	014	6.8	Hm	009	11.2	Hf	977	8.8	Dh	924	12.7	Bl
004	12.8	Dh	006	9.3	Hf	015	7.1	Kp	010	11.7	Jo	977	8.8	Jo	925	12.5	Sl
004	12.5	Jo	008	9.4	Mn	015	6.7	Jo	015	11.5	Jo	978	8.9	Sv	926	12.9	Ht
008	12.6	Jo	008	9.9	Jo	016	6.8	Hm	017	11.0	Jo	978	8.9	Kn	930	12.5	Ht
009	12.8	Dh	009	9.4	Wd	017	6.9	Jo	020	10.8	Cm	978	8.8	Dh	930	12.2	Bl
010	12.8	Dh	012	9.4	Bu	018	6.9	Bu	023	11.0	Jo	980	8.8	Dh	941	11.0	Bl
011	12.9	Dh	014	9.3	Mn	019	6.8	Wd	RX CEP			980	9.0	Wp	945	11.2	Ht
012	12.7	Dh	015	10.0	Rb	019	7.0	Dl	004281			982	8.8	Dh	948	10.5	Bl
013	12.8	Dh	015	9.8	Jo	019	6.9	Hm	954	7.4	Lt	982	8.9	Bu	951	11.0	Ht
014	12.7	Dh	017	9.9	Jo	020	7.0	Hm	V AND			982	9.0	Jo	955	10.8	Ht
015	12.5	Dh	018	9.4	Kn	020	7.1	Dl	004435			983	9.0	Ra	958	10.4	Sl
017	12.5	Jo	018	9.1	Mc	020	7.1	Cm	017[	12.0	Jo	983	8.7	Dh	959	10.0	Bl
019	12.6	Wa	019	9.6	Dl	023	7.1	Dl	RR AND			983	8.6	Ar	975	9.3	Ht
020	12.5	Wa	020	9.6	Dl	023	7.1	Hm	004533			983	8.7	Sc	Z CET		
020	12.9	Cm	020	9.9	Cm	023	7.1	Jo	977	9.4	Jo	984	8.7	Dh	*010102*		
023	12.3	Jo	023	8.8	Ba	023	7.1	Lo	982	9.0	Jo	985	8.7	Jo	010	10.3	Cm
S SCL			023	9.7	Jo	026	6.9	Pt	985	9.2	Jo	987	8.8	Dh	015	10.0	Jo
001032			026	9.0	Pt	S TUC			001	9.5	Jo	987	9.2	Cm	026	11.4	Pt
955	12.5	Ht	R AND			*001862*			009	9.5	Hf	988	8.8	Dh	U AND		
X AND			001838			924	10.0	Bl	010	9.2	Jo	988	8.9	Jo	010940		
001046			962	6.4	Pt	930	10.1	Bl	017	9.3	Jo	989	8.8	Dh	986	12.0	Gy
989	12.7	Cm	965	6.7	Cm	941	9.6	Bl	023	9.5	Jo	989	8.9	Wa	017[	12.1	Jo
020	13.4	Cm	965	6.7	Jo	948	9.7	Bl	RV CAS			990	9.2	Ra	S CAS		
T CET			977	6.6	Jo	955	9.6	Ht	004746a			992	8.7	Dh	011272		
001620			979	6.6	Kp	959	9.8	Bl	962[	13.2	Pt	993	8.7	Dh	927	9.0	Fc
983	6.0	Lt	982	6.6	Kp	S CET			987	12.4	Cm	994	9.0	Wd	962	9.1	Pt
007	6.1	Lt	982	6.5	Jo	*001909*			989	12.3	Wa	994	9.3	Gy	974	9.5	Hf
016	5.7	Lt	983	6.6	Bu	989	13.3	Pt	006	10.0	Hf	995	8.7	Jo	977	9.6	Jo
T AND			985	6.4	Jo	010	13.6	Cm	018	9.2	Kn	996	8.9	Dh	979	9.7	Jo
001726			986	6.5	Kp	026[	13.3	Pt	020	9.6	Cm	997	8.8	Dh	982	9.7	Jo
962[	12.6	Pt	989	6.8	Cm	T PHE			026	8.8	Pt	998	8.7	Dh	985	9.8	Jo
989	12.9	Cm	989	6.1	Pt	*002546*						999	9.0	Bu	987	9.9	Cm
020	12.4	Cm	990	6.6	Kp	955[	13.0	Ht				000	8.7	Dh	989	9.3	Pt
026	12.0	Pt	993	6.9	Dl	Y CEP						001	8.7	Jo	008	10.1	Jo
			995	6.7	Jo	003179						001	8.7	Dh	009	10.5	Hf
			996	6.7	Bu	984[	12.4	Gy				002	8.6	Dh	010	10.4	Jo

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J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
S CAS			U PER			T PER			S PER			TX PER			W PER		
011272			015254			021258			021558			024136			024356		
015	10.6	Jo	977	7.8	Ry	985	8.5	Jo	011	9.2	Dl	015	10.4	Jo	008	10.0	Ry
017	10.5	Jo	977	8.0	Jo	987	9.4	Hm	013	9.0	Dl	015	10.9	Dh	008	9.7	Jo
020	10.5	Cm	982	7.8	Jo	989	8.7	Pt	016	9.0	Hm	017	10.4	Jo	009	10.3	Dh
021	10.7	Jo	983	8.2	Ry	001	8.7	Jo	017	8.4	Jo	T ARI			009	9.8	Hm
026	11.5	Pt	985	7.8	Jo	007	9.0	Bl	019	9.0	Hm	024217			010	9.9	Hm
U PSC			985	7.8	Kn	007	9.0	Lt	019	8.8	Wd	985	11.1	Me	010	10.0	Dl
011712			988	8.0	Jo	008	8.5	Jo	019	9.0	Dl	W PER			010	10.3	Dh
989	11.4	Pt	989	7.7	Pt	009	9.0	Hm	020	9.0	Dl	024356			011	9.8	Dl
026	12.7	Pt	990	8.6	Ry	010	9.1	Hm	020	9.0	Hm	927	9.4	Fc	011	9.9	Hm
RZ PER			994	8.5	Cm	010	9.0	Bl	021	8.4	Jo	938	9.6	Hm	012	9.9	Hm
012350			995	8.1	Jo	011	8.9	Bl	023	9.1	Kg	949	9.6	Hm	012	10.3	Dh
977	10.7	Jo	005	8.5	Ry	011	9.1	Cm	026	8.3	Pt	951	9.7	Hm	013	10.4	Wm
979	11.0	Jo	008	8.6	Ry	013	9.0	Bl	RR PER			955	10.0	Ry	013	10.0	Dh
985	10.8	Jo	010	8.2	Jo	016	9.1	Hm	022150			956	9.7	Hm	013	9.7	Bc
994	11.2	Gy	011	8.7	Cm	017	8.4	Jo	962	13.2	Pt	962	9.6	Pt	013	10.8	Fd
009	10.9	Gy	015	8.6	Jo	019	8.8	Wd	989	13.2	Pt	962	10.1	Ry	013	9.7	Hv
010	10.1	Jo	017	8.5	Jo	019	9.0	Bl	994	13.2	Cm	970	10.0	Ry	013	10.1	Dl
015	10.4	Jo	018	8.8	Mc	019	9.2	Hm	011	13.5	Cm	976	10.9	Dh	013	9.9	Hm
017	10.5	Jo	022	8.6	Ba	020	9.0	Hm	026	13.2	Pt	977	9.5	Jo	014	10.2	Dh
018	10.2	Kn	023	8.6	Jo	020	9.0	Bl	R FOR			977	10.0	Ry	014	9.7	Bc
R PSC			026	9.0	Pt	021	8.5	Jo	*022426*			982	9.7	Dh	014	9.8	Hv
012502			XX PER			026	8.5	Pt	924	9.7	Bl	982	9.6	Jo	015	10.0	Dh
989	8.2	Pt	015654			Z CEP			U CET			983	10.0	Dh	015	9.8	Hv
026	8.9	Pt	959	8.5	Lt	021281			*022813*			983	10.1	Ry	015	9.8	Jo
RU AND			RV AND			962	12.3	Pt	010	11.2	Cm	987	10.1	Dh	015	9.9	Bc
013238			020448			984	13.0	Gy	026	9.5	Pt	987	10.2	Mc	016	10.0	Hm
962	11.3	Pt	979	10.2	Jo	026	12.5	Pt	RR CEP			988	10.1	Dh	018	9.9	Mc
989	10.9	Cm	985	10.2	Jo	o CET			022980			988	9.5	Jo	019	10.0	Hm
989	10.5	Pt	985	10.1	Me	*021403*			962	13.5	Pt	988	9.7	Bc	020	10.0	Hm
994	11.2	Cm	987	9.9	Wp	009	9.2	Dh	984	12.7	Gy	988	9.7	Hv	020	10.0	Dl
010	11.0	Gy	001	10.0	Wa	013	9.3	Dh	026	12.9	Pt	989	10.2	Dh	026	9.5	Pt
018	10.8	Kn	001	10.0	Wp	014	9.3	Dh	R TRI			989	9.9	Pt	R HOR		
020	11.6	Cm	010	10.3	Jo	015	9.3	Dh	023133			990	9.6	Bc	*025050*		
026	11.0	Pt	015	10.4	Jo	015	9.4	Jo	962	10.3	Pt	990	9.6	Hv	924	13.3	Bl
Y AND			021	10.0	Jo	026	9.4	Pt	984	11.3	Gy	990	10.1	Ry	959	12.4	Sl
013338			023	9.9	Jo	S PER			989	11.1	Pt	992	10.4	Dh	T HOR		
962	13.0	Pt	023	10.0	Ba	021558			997	11.6	Dh	992	10.0	Bc	*025751*		
989	13.0	Pt	R ARI			927	9.3	Fc	000	11.4	Dh	992	10.0	Hv	924	12.3	Bl
010	12.4	Gy	021024			944	9.3	Kg	001	12.0	Dh	993	10.4	Dh	X CET		
026	13.0	Pt	989	10.4	Pt	947	9.0	Cm	002	11.4	Dh	996	10.5	Dh	*031401*		
X CAS			997	10.1	Dh	962	8.6	Pt	003	11.4	Dh	997	10.4	Dh	026	12.6	Pt
014958			004	9.7	Dh	967	8.9	Cm	009	11.6	Dh	998	10.4	Dh	Y PER		
962	11.1	Pt	015	8.4	Dh	976	9.0	Dh	010	11.7	Cm	999	9.7	Bc	032043		
977	12.2	Jo	015	9.7	Jo	977	8.9	Jo	012	11.4	Dh	999	9.7	Hv	962	10.1	Pt
982	12.0	Jo	017	9.8	Jo	977	9.5	Hm	014	11.5	Dh	000	10.0	Dh	977	10.4	Jo
989	12.0	Pt	026	8.1	Pt	982	9.0	Jo	015	11.6	Dh	000	9.7	Hv	982	9.9	Jo
001	12.0	Jo	W AND			983	8.6	Hb	026	11.5	Pt	000	9.7	Bc	989	10.0	Pt
010	12.3	Jo	021143a			984	9.0	Gy	TX PER			001	9.7	Jo	001	9.5	Jo
017	12.2	Jo	962	12.7	Pt	985	8.7	Jo	024136			001	10.3	Dh	010	9.4	Jo
021	12.0	Jo	989	11.9	Pt	988	8.8	Jo	996	10.4	Ar	002	9.8	Hm	015	9.4	Jo
026	12.6	Pt	026	10.6	Pt	989	8.6	Pt	997	10.4	Ar	003	10.0	Dh	018	9.3	Mc
U PER			T PER			994	8.9	Cm	000	10.4	Ar	004	9.7	Bc	021	9.3	Jo
015254			021258			001	9.0	Jo	004	10.6	Ar	004	10.0	Dh	026	8.5	Pt
938	8.5	Hm	947	9.2	Cm	007	9.3	Dl	009	10.6	Dh	004	9.7	Hv	R PER		
955	7.6	Ry	959	9.0	Lt	008	8.8	Jo	010	10.7	Gy	005	10.0	Ry	032335		
962	7.8	Ry	962	8.8	Pt	009	9.0	Hm	011	10.4	Cm	006	9.7	Hv	989	12.3	Pt
962	7.5	Pt	965	9.1	Cm	010	9.2	Dl				007	10.3	Dh	026	12.9	Pt
965	8.2	Jo	977	8.7	Jo	010	9.2	Hm				007	9.7	Hv			
970	7.8	Ry	977	9.1	Hm	011	8.6	Cm				007	9.6	Dl			

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
RU PER			U CAM			R RET			R DOR			R LEP			S AUR		
032339			033362			*043263*			*043562*			*045514*			052034		
993	10.0	Ar	008	8.3	Hm	926	[12.2	Sl	828	5.7	Wv	869	9.3	Df	927	11.4	Fc
996	11.0	Ar	009	8.4	Hm	930	[12.3	Ht	855	5.6	Wv	888	9.6	Df	933	11.4	Fc
997	10.9	Ar	010	8.5	Hm	944	12.5	Ht	868	6.0	Wv	892	9.6	Df	010	10.5	Jo
997	10.8	Dh	010	7.8	Jo	951	[12.3	Ht	869	5.6	Sl	903	9.9	Df	W AUR		
000	10.9	Dh	011	8.6	Hm	959	12.2	Sl	886	6.1	Wv	925	7.6	Sl	052036		
000	10.9	Ar	012	8.6	Hm	X CAM			903	6.1	Wv	V ORI			010	[12.3	Cm
001	11.2	Dh	014	8.6	Hm	043274			904	5.7	Sl	050003			RR CAM		
002	11.4	Dh	015	7.6	Jo	928	12.4	Ks	914	5.8	Wv	020	[12.8	Cm	052372		
003	11.3	Dh	015	8.0	Kn	930	12.0	Fc	924	5.8	Wv	T LEP			965	10.1	Fc
004	11.5	Dh	016	8.4	Hm	931	11.9	Fc	924	5.5	Bl	*050022*			972	9.5	Fc
004	11.0	Ar	019	8.5	Hm	933	11.8	Fc	926	5.6	Sl	924	10.1	Bl	974	9.8	Wp
009	11.3	Dh	020	8.6	Hm	937	11.4	Fc	926	5.5	Ht	930	10.1	Bl	974	9.8	Wa
010	11.2	Dh	021	7.5	Jo	938	11.2	Fc	930	5.4	Ht	941	10.1	Bl	976	9.6	Wa
012	11.2	Dh	X PER			958	9.6	Md	930	5.5	Bl	UZ AUR			980	9.9	Wa
013	11.2	Dh	034930			960	9.3	Kn	932	5.7	Sl	050840			980	9.8	Hk
014	11.3	Dh	983	6.5	Lt	962	8.9	Md	940	5.5	Ht	827	8.2	Lt	010	10.0	Gy
015	11.2	Dh	016	6.4	Lt	965	8.9	Hf	941	5.9	Bl	837	8.1	Lt	015	9.7	Jo
015	10.0	Jo	018	6.4	Mc	967	8.7	Wp	943	5.7	Wv	859	8.1	Lt	017	9.9	Jo
017	10.1	Jo	T TAU			970	8.4	Hf	944	5.6	Ht	890	8.3	Lt	023	9.7	Ba
NOV PER			041619			973	8.4	Md	948	5.5	Bl	925	8.1	Lt	T ORI		
032443			888	10.1	Hr	979	8.2	Jo	951	5.4	Ht	S PIC			*053005a*		
989	13.5	Ar	907	10.6	Bm	980	8.1	Md	955	5.8	Wv	*050848*			888	10.0	Hr
993	14.0	Ar	R TAU			980	8.2	Kn	958	5.5	Ht	926	[13.4	Ht	S CAM		
996	14.2	Ar	042209			982	8.3	Jo	959	5.6	Sl	946	[12.9	Bl	053068		
997	14.3	Ar	907	10.8	Bm	987	8.3	Jo	959	5.6	Bl	958	[13.4	Ht	927	8.5	Fc
003	14.0	Ar	026	[13.0	Pt	994	8.5	Gy	972	5.2	Wv	R AUR			930	8.6	Fc
004	14.0	Ar	W TAU			997	8.3	Wa	978	5.4	Wv	050953			931	8.6	Fc
010	13.7	Ar	042215			997	8.3	Wp	983	5.6	Sl	927	11.9	Fc	933	8.6	Fc
012	13.7	Ar	997	10.3	Dh	001	8.8	Jo	R CAE			931	12.2	Fc	937	8.6	Fc
013	13.8	Ar	004	10.4	Dh	009	9.8	Md	*043738*			933	11.9	Fc	938	8.6	Fc
014	14.4	Ar	009	10.1	Dh	010	9.5	Jo	924	10.8	Bl	937	11.9	Fc	955	8.4	Md
015	14.3	Ar	014	10.4	Dh	011	9.6	Kn	926	11.1	Ht	938	11.3	Fc	958	8.1	Md
026	[12.9	Pt	015	10.5	Dh	013	9.0	Dl	930	11.4	Ht	010	9.4	Jo	964	8.7	Es
U CAM			026	10.2	Pt	015	10.0	Jo	930	10.9	Bl	010	9.2	Cm	965	8.6	Hf
033362			S TAU			016	9.8	Md	941	11.5	Bl	015	8.8	Jo	965	8.5	Jo
938	8.9	Hm	042309			023	10.7	Jo	948	11.6	Bl	T PIC			967	8.7	Wp
941	8.8	Hm	907	[12.8	Bm	R DOR			960	[11.5	Bl	*051247*			970	8.7	Hf
942	8.8	Hm	026	[13.0	Pt	*043562*			ST CAM			926	[13.1	Ht	973	8.5	Md
945	8.7	Hm	T CAM			568	5.8	Wv	044067			946	13.1	Bl	978	8.4	Md
949	8.7	Hm	043065			578	5.7	Wv	928	6.8	Ks	951	13.0	Ht	979	8.6	Jo
951	8.6	Hm	928	14.1	Ks	594	5.8	Wv	R PIC			T COL			980	8.6	Kn
956	8.7	Hm	987	9.7	Hm	648	5.1	Wv	*044349*			*051533*			982	8.5	Jo
967	7.7	Jo	001	9.4	Jo	669	5.2	Wv	924	8.1	Bl	922	8.3	dK	985	8.6	Jo
977	8.3	Hm	002	9.4	Hm	678	5.2	Wv	926	8.6	Ht	924	7.6	Bl	987	8.7	Jo
978	8.4	Hm	010	9.2	Hm	683	5.2	Wv	930	8.7	Ht	926	8.3	Ht	990	9.1	Hh
979	7.8	Jo	010	9.5	Dl	689	5.3	Wv	930	8.5	Bl	930	7.7	Ht	995	8.7	Jo
980	8.4	Hm	010	9.5	Jo	707	5.4	Wv	940	8.9	Ht	930	7.5	Bl	997	8.8	Wa
982	8.4	Hm	011	9.1	Dl	710	5.3	Wv	941	8.2	Bl	931	8.0	dK	997	8.8	Wp
982	7.8	Jo	013	9.1	Dl	717	5.4	Wv	944	9.0	Ht	937	7.9	dK	004	8.7	Jo
984	8.4	Hm	013	9.1	Hm	737	5.4	Wv	948	8.8	Bl	940	7.7	Ht	009	8.7	Md
985	8.5	Hm	014	9.2	Hm	750	5.6	Wv	951	8.8	Ht	941	7.4	Bl	010	9.4	Hh
985	8.0	Jo	015	9.2	Jo	762	5.8	Wv	960	9.0	Bl	944	7.5	Ht	010	8.8	Jo
986	8.4	Hm	016	9.2	Hm	766	5.8	Wv	R ORI			944	7.8	dK	011	9.0	Kn
987	8.5	Hm	019	9.1	Dl	773	5.6	Wv	045307			948	7.8	Bl	016	8.6	Md
988	8.5	Hm	019	9.0	Hm	783	5.6	Wv	020	[12.6	Cm	950	8.0	dK	017	9.0	Jo
001	8.1	Jo	020	9.2	Hm	794	5.4	Wv	R LEP			960	7.9	Bl	023	9.0	Jo
001	8.7	Hm	020	9.0	Dl	801	5.4	Wv	*045514*								
002	8.8	Hm	023	9.0	Jo	812	5.5	Wv	865	8.8	Df						

Variable Star Observations Received During July and August, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
β Dor			α Ori			V Aur			V CMi			T CMi			W Pup		
053262			054907			061647			070109			072811			*074241*		
944	3.5	Df	868	0.4	Sl	958	9.0	Fc	928[13.5		Ch	924[12.9		Ch	979	8.5	dK
954	3.3	Df	900	0.3	Sl	960	9.0	Md	R Gem			930[12.4		Fc	985	8.5	dK
967	3.8	Df	920	0.3	Sl	961	9.1	Fc	070122a			Z Pup			991	8.8	dK
RR Tau			925	0.4	Sl	962	9.1	Fc	924	9.1	Ch	*072820b*			T Gem		
053326			U Ori			964	9.2	Fc	940	9.8	Ra	907	10.3	Bm	074323		
907	12.3	Bm	054920a			968	9.1	Fc	946	10.6	Pt	915	11.0	Bm	928	14.0	Fc
915	11.9	Bm	870	8.7	Pv	969	9.0	Fc	948	10.1	Ch	931	11.2	Bm	928	13.9	Ch
015	11.8	Cm	928	10.1	Ch	BL Ori			950	10.4	Ks	943	12.6	En	946	13.0	Pt
U Aur			TW Aur			061914			Z Gem			950	12.6	En	950	12.5	Ks
053531			054945			950	6.1	Ks	070122b			S Vol			RZ UMa		
961[12.5		Fc	925	8.1	Lt	U Lyn			940[12.1		Ra	*073173*			080165		
964[11.8		Fc	Z Aur			063159			TW Gem			924[13.2		Bl	955	8.5	Sz
SU Tau			055353			933[12.4		Cl	070122c			930[13.2		Ht	958	8.8	Md
054319			944	9.9	Pt	959[14.6		Fc	940	8.9	Ra	943[12.8		En	959	8.8	Rc
928	10.1	Ch	958	10.6	Fc	Nov Pic			R CMi			946	13.0	Bl	962	8.8	Md
S Col			961	9.6	Fc	*063462*			070310			950	13.0	En	964	8.9	Md
054331			962	9.7	Fc	926	9.1	Ht	928	8.8	Ch	958	13.0	Ht	965	8.8	Hf
924	11.5	dK	964	9.7	Fc	930	9.1	Ht	950	9.2	Ks	959	12.8	En	965	8.8	Fc
924	11.3	Bl	968	9.7	Fc	943	9.0	En	R Vol			972	12.5	Ht	967	8.6	Wp
926	11.3	Ht	969	9.8	Fc	944	9.1	Ht	*070772*			U CMi			969	8.7	Ks
930	11.4	Ht	RS Aur			951	8.9	Ht	926[13.4		Ht	073508			970	8.8	Hf
930	11.3	Bl	055646a			955	9.0	En	943[13.4		En	924	8.8	Ch	973	9.0	Md
931	11.6	dK	956	11.0	Ra	958	9.1	Ht	951[13.4		Ht	930	8.7	Fc	973	8.8	Fc
941	11.4	Bl	957	11.0	Rc	972	9.1	Ht	972[13.4		Ht	931	8.7	Fc	974	8.7	Rc
943	11.6	En	961	10.6	Pf	S Lyn			L_2 Pup			933	8.5	Fc	977	8.6	Md
944	11.9	Ht	004	10.4	Ar	063558			*071044*			935	8.8	Ch	979	8.7	Hf
948	11.8	Bl	009	10.5	Dh	959	14.7	Fc	869	4.2	Sl	946	8.7	Pt	979	8.7	Jo
951	12.2	Ht	SV Aur			991	12.5	Ry	904	4.0	Sl	Y Gem			979	8.6	Rc
960	12.0	Bl	055646b			007	11.2	Ry	914	4.0	Sl	073520			980	8.8	Md
Z Tau			009	9.5	Dh	012	11.0	Ry	920	4.2	Sl	956	9.7	Ra	981	8.7	Rc
054615a			XZ Aur			X Gem			926	4.3	Sl	S Gem			982	8.7	Fc
907	13.8	Bm	055647			064030			932	4.1	Sl	*073723*			982	8.7	Jo
915	13.1	Bm	009	11.3	Dh	930	8.3	Fc	953	4.3	Sl	928	13.9	Ch	986	8.5	Hf
RU Tau			R Oct			931	8.3	Fc	958	4.3	Sl	946[12.4		Pt	988	8.6	Rc
054615c			*055686*			933	8.4	Fc	983	4.3	Sl	950	14.0	Ks	995	8.3	Wp
907[13.5		Bm	924	11.5	Bl	937	8.3	Fc	RR Mon			W Pup			995	8.1	Wa
915[14.7		Bm	927	11.6	Ht	938	8.4	Fc	071201			*074241*			001	8.1	Wa
R Col			930	11.6	Bl	Y Mon			924[13.2		Ch	924	12.2	Bl	001	8.3	Jo
054629			946	11.6	Bl	065111			V Gem			926	12.2	Ht	001	8.2	Wp
924	8.2	dK	946	11.0	En	928	10.8	Ch	071713			930	11.7	Ht	009	8.3	Md
924	7.8	Bl	960	12.0	En	R Lyn			924[12.8		Ch	930	11.3	Bl	010	8.4	Jo
926	8.3	Ht	960	11.8	Bl	065355			946[12.2		Pt	931	11.3	dK	016	8.6	Jo
930	8.7	Ht	975[12.0		Ht	928	12.6	Fc	S CMi			938	10.9	dK	016	8.3	Md
930	7.9	Bl	X Aur			933[12.4		Fc	072708			941	9.8	Bl	R Cnc		
931	8.7	dK	060450			RS Gem			862	8.5	Wm	943	9.8	En	081112		
937	9.0	dK	924	10.5	Ch	065530			924	7.5	Ch	944	9.7	dK	928	7.1	Ch
940	9.1	Ht	935	11.2	Ch	930	11.1	Fc	930	7.4	Fc	945	9.4	Ht	930	7.4	Fc
941	9.0	Bl	954	12.1	Ap	931	11.2	Fc	931	7.8	Fc	948	9.1	Bl	931	7.3	Fc
943	8.2	En	958	10.9	Fc	933	10.9	Fc	932	8.9	Fn	950	9.2	En	933	7.3	Fc
944	9.3	Ht	961	11.4	Fc	937	11.0	Fc	933	7.3	Fc	950	9.3	dK	938	7.0	Fc
944	8.9	dK	962	11.1	Fc	938	11.0	Fc	938	8.7	Hm	951	9.2	Ht	938	7.4	Hm
948	9.0	Bl	964	11.5	Fc	Z CMa			941	8.7	Hm	958	9.0	Ht	941	7.3	Hm
950	9.1	dK	968	11.6	Fc	*065911*			942	8.6	Hm	958	8.8	dK	942	7.2	Hm
951	9.3	Ht	969	11.6	Fc	904	10.1	Sl	945	8.6	Hm	959	9.1	En	944	7.0	OK
958	9.6	dK	V Aur			926	10.4	Sl	946	7.6	Pt	960	8.8	Bl	945	7.2	Hm
960	9.9	Bl	061647			958	10.6	Sl	947	8.0	Cm	966	8.7	dK	946	6.8	Pt
966	10.2	dK	928	9.1	Ch				948	8.0	Ch	972	8.6	dK	948	6.8	Ch
			957	9.0	Fc							972	8.7	Ht	949	7.1	Hm

Variable Star Observations Received During July and August, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
R Cnc			RS Cam			RW Car			Y Dra			R Leo			R Leo		
081112			083679			*091868*			093178			094211			094211		
949	6.7	Sx	969	8.6	Ks	926[	12.8	Ht	930	10.6	Fc	932	8.6	Kd	982	5.6	Bc
950	6.3	Ks	S Hya			946[	12.8	Bl	933	10.5	Fc	933	7.7	Fc	982	5.8	Ks
951	7.2	Hm	084803			958[	12.8	Ht	938	11.0	Fc	935	7.6	Ch	982	5.5	Hv
V Cnc			930	11.2	Fc	972[	12.8	Ht	944	11.6	Fc	938	8.6	Hm	984	6.9	Hm
081617			946	12.2	Pt	Y Vel			946	11.0	Ks	940	7.5	Ra	986	5.4	Me
930	9.2	Fc	948	12.4	Ch	*092551*			969	12.6	Ks	941	8.4	Hm	987	5.3	Sz
931	9.2	Fc	950	11.7	Ks	924	13.5	Bl	973	12.6	Fc	942	8.5	Sx	990	5.1	Hh
933	9.2	Fc	X Cnc			946	13.0	Bl	984	13.2	Gy	942	8.2	Hm	010	6.2	Hh
935	9.0	Ch	084917			948	12.9	Bl	R LMi			943	7.3	Pk	1 Car		
938	9.0	Fc	950	6.6	Ks	950	13.0	En	093934			943	7.5	Dt	*094262*		
946	8.2	Pt	T Hya			959	12.8	En	924	9.6	Ch	944	8.0	Fc	865	4.1	Df
950	8.6	Ks	*085008*			960	12.5	Bl	930	9.5	Fc	945	8.3	Hm	869	3.7	Df
T Lyn			930[	12.5	Fc	972	11.2	Ht	933	9.2	Fc	945	8.4	Kd	873	3.6	Df
081633			948	12.8	Ch	R Car			938	9.2	Fc	946	8.5	Kd	888	4.2	Df
976	9.4	Wa	T Cnc			*092962*			943	8.0	Dt	946	7.3	Pt	892	4.3	Df
977	9.4	Wa	085120			904	8.5	Sl	944	8.9	Fc	946	7.8	Ks	895	4.3	Df
980	9.4	Wa	930	10.2	Fc	914	9.0	Sl	946	8.9	Ks	947	8.6	Wm	903	4.2	Df
RT Hya			933	10.1	Fc	922	9.0	dK	946	7.9	Pt	947	8.1	Hm	904	4.1	Df
082405			935	9.5	Ch	924	9.2	Bl	948	8.4	Ch	947	7.8	Fn	936	4.0	En
930	9.1	Fc	938	10.3	Fc	926	9.4	Ht	949	8.0	Sx	949	8.3	Sx	938	4.0	En
931	8.8	Fc	946	8.8	Pt	926	9.2	Sl	956	7.7	Ra	949	8.4	Kd	939	3.9	En
933	8.7	Fc	S Pyx			930	9.3	Ht	956	8.0	Dt	949	8.3	Hm	940	3.6	En
R Cha			*090024*			930	9.3	Bl	960	7.6	Md	950	7.8	Mw	942	3.4	En
082476			915	9.7	Bm	931	9.3	dK	964	7.4	Md	951	8.3	Hm	943	3.4	En
924	8.7	Bl	943	11.0	Bm	937	9.2	dK	965	7.7	Hf	951	8.2	Cm	944	2.5	Df
926	8.7	Sl	T Pyx			940	9.4	Ht	966	7.2	Hi	953	8.1	Fn	944	3.7	En
926	8.8	Ht	*090031*			941	9.7	Bl	973	7.0	Md	955	7.9	Md	945	2.5	Df
930	8.6	Ht	946	[t	Bl	943	9.8	En	974	6.5	Pt	955	8.4	Kd	945	3.7	En
930	7.7	Bl	V UMa			944	9.2	dK	977	6.5	Jo	956	6.8	Dt	946	3.8	En
941	7.4	Bl	090151			944	9.3	Ht	978	6.7	Wd	956	8.4	Hm	947	3.7	En
943	7.6	En	930	10.5	Fc	946	9.4	En	978	7.0	Dt	956	8.0	Hv	949	3.7	En
944	8.0	Ht	933	10.8	Fc	948	9.7	Bl	978	6.9	Hi	957	7.6	Bc	950	3.7	En
948	7.0	Bl	938	10.6	Fc	950	9.4	En	979	7.0	Rb	957	7.6	Hv	951	2.9	Df
950	7.5	En	944	10.5	Fc	950	9.1	dK	979	6.5	Hf	959	7.8	Bk	952	4.0	En
951	7.9	Ht	965	10.1	Hf	951	9.5	Ht	979	6.8	Ra	961	7.9	Hv	953	4.1	En
958	7.8	Ht	965	10.3	Cm	952	10.0	Df	980	6.4	Wd	962	7.7	Hv	954	3.2	Df
958	7.8	Sl	976	10.7	Mc	958	9.4	Sl	982	6.5	Jo	963	7.4	Kd	955	4.0	En
959	7.0	En	977	10.7	Jo	958	9.8	Ht	982	6.6	Ks	965	7.5	Cm	956	3.9	En
960	7.5	Bl	979	10.3	Hf	958	8.9	dK	984	6.6	Jo	967	7.4	Kd	957	4.0	Df
965	7.6	En	981	10.6	Mc	959	9.7	En	986	7.0	Dt	969	7.0	Wd	959	4.0	En
972	8.2	Ht	985	10.6	Jo	960	9.7	Bl	986	6.3	Me	970	7.2	Cx	960	4.1	En
979	7.8	Sl	987	10.5	Mc	966	8.9	dK	988	6.7	Jo	970	7.1	Hf	961	4.2	En
U Cnc			988	10.7	Jo	972	8.7	dK	RR Hya			970	7.5	Hm	961	4.2	Df
083019			011	10.2	Mc	972	9.4	Ht	*094023*			972	7.1	Sx	963	4.2	En
930[	13.3	Fc	018	10.3	Mc	977	9.2	Sl	915	10.5	Bm	974	6.7	Sf	963	3.8	Df
948[	12.9	Ch	W Cnc			977	10.0	Df	943	12.3	Bm	974	6.1	Pt	971	3.0	Df
X UMa			090425			979	8.7	dK	943	12.0	En	975	6.7	Mc	975	4.0	Df
083350			946[	12.8	Pt	985	8.6	dK	950	12.8	En	976	6.2	Bk	977	3.8	Df
946[	13.2	Pt	948[	12.6	Ch	991	8.5	dK	950	12.2	Bm	977	5.8	Hv	979	3.0	Df
979	10.4	Hf	RX UMa			002	8.4	dK	959	12.4	En	977	5.8	Bc	Y Hya		
979	10.4	Jo	090567			007	8.2	dK	R Leo			977	6.1	Ba	*094622*		
985	10.2	Jo	933	11.6	Ks	915	9.1	Bm	094211			977	6.9	Hm	943	7.0	En
986	9.7	Me	946	11.3	Ks	938	9.2	Hm	862	9.8	Wm	978	6.8	Hm	950	7.0	En
987	9.9	Hf	969	10.7	Ks	942	9.2	Hm	920	8.6	Fn	978	5.8	Bc	959	7.0	En
988	10.0	Jo	RW Car			943	9.8	Bm	922	8.4	Mw	978	5.8	Hv	S LMi		
RS Cam			*091868*			946	10.5	Pt	929	8.3	Mw	978	6.5	Dt	094735		
083679			915[	12.8	En	948	10.2	Ch	929	8.5	Wm	980	5.9	Hv	960	12.2	Md
946	8.4	Ks				950	10.0	Bm	930	7.7	Fc	980	6.8	Hm	964	11.7	Md

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
S LMi			V Leo			S Car			S Sex			R UMa			V Hya		
094735			095421			*100661*			102900			103769			*104620*		
965	11.8	Fc	948	9.7	Ch	944	6.9	dK	898	9.2	Kd	986	12.0	Me	959	7.9	En
966	11.7	Hi	962	10.6	Cl	946	6.9	En	904	9.0	Kd	987	12.0	Ba	960	8.5	Bl
967	11.3	Wp	965	10.4	Cm	948	7.5	Bl	914	9.1	Kd	987	12.2	Wd	RS Hya		
971	11.2	Fc	974	11.1	Sf	950	7.0	dK	917	9.1	Kd	987	11.8	Sz	*104628*		
973	11.3	Fc	974	11.6	Pt	950	6.9	En	928	9.3	Kd	988	12.0	Jo	947[	12.9	Bl
976	9.9	B	RR Car			951	7.1	Ht	930	9.4	Kd	991	11.9	Hf	950	12.5	En
978	9.6	B	*095458*			958	7.6	Ht	945	10.2	Kd	994	11.9	Gy	W Leo		
978	10.2	Hi	927	8.0	Ht	958	7.1	dK	946	10.6	Kd	995	12.2	Jo	104814		
979	10.1	Ra	943	7.7	En	959	7.5	En	949	10.7	Kd	002	11.0	Dl	917	13.6	Bm
980	10.9	Fc	944	7.8	Ht	959	7.1	Sl	955	10.8	Kd	004	11.0	Ba	926	13.5	Bm
981	9.6	B	950	7.9	En	960	7.4	Bl	965[	10.6	Fc	004	11.7	Jo	943	14.0	Bm
986	9.2	Me	951	7.6	Ht	966	7.4	dK	974[	11.1	Rb	005	10.5	Mc	950	14.6	Bm
U LMi			958	7.3	Ht	972	7.4	dK	U Hya			006	11.2	Hi	965[	12.4	Cm
094836			959	7.5	En	972	7.9	Ht	*103212*			008	10.6	Td	RS Car		
974	12.5	Wp	972	7.6	Ht	977	7.3	Sl	930	5.9	Kd	009	10.7	Wd	*110361*		
974	12.4	Wa	RV Car			979	7.8	dK	938	6.1	Hm	009	10.8	Rb	946[	12.3	En
976	12.3	Wa	*095563*			985	7.9	dK	939	5.6	Ka	009	11.0	Dl	S Leo		
979	12.6	Ra	924	11.0	Bl	991	7.0	dK	940	5.6	Ka	010	10.8	Ba	110506		
979	12.4	Rb	926	11.0	Ht	002	6.5	dK	941	6.3	Hm	010	10.7	Gy	930	13.0	Fc
980	12.2	Wa	930	10.9	Ht	007	6.5	dK	942	6.3	Hm	010	10.5	Kn	947	12.3	Pt
SY UMa			930	10.9	Bl	U UMa			945	6.1	Hm	010	10.8	Rb	970	11.6	Pt
094950			941	10.7	Bl	100860			946	6.0	Kd	010	10.5	Td	974	12.1	Rb
943	5.1	Lt	943	10.7	En	888	6.5	Hr	948	5.6	Ka	010	10.9	Dl	RY Car		
961	5.0	Lt	944	10.6	Ht	924	6.6	Hr	950	5.5	Ka	010	10.2	Hf	*111561*		
Z Vel			946	10.9	En	933	6.5	Ks	956	5.4	Ka	011	9.9	Mc	924[	13.1	Bl
094953			948	10.5	Bl	943	6.4	Lt	970	6.3	Hm	011	10.6	Td	947[	13.1	En
924	12.0	Bl	950	10.7	En	961	6.4	Lt	RZ Car			011	10.4	Jo	951[	13.1	Ht
926	11.5	Sl	951	10.7	Ht	969	6.4	Ks	*103270*			011	10.9	Dl	973[	13.1	Ht
927	12.0	Ht	958	10.7	Ht	987	6.5	Lt	926	12.9	Ht	011	10.3	Cm	RS Cen		
930	11.9	Bl	959	11.2	En	990	6.6	Mn	930	12.7	Ht	013	9.5	Rb	*111661*		
941	11.0	Bl	960	11.3	Bl	002	6.5	Mn	946	13.1	En	013	10.7	Dl	924	12.8	Bl
943	11.5	En	973	11.8	Ht	008	6.4	Mn	958[	13.6	Ht	013	10.2	Hf	927	13.1	Ht
944	12.2	dK	RY Leo			008	6.5	Lt	973[	13.6	Ht	014	10.0	Mn	944	12.4	Ht
944	12.0	Ht	095814			Z Car			R UMa			015	9.6	Jo	947	11.9	Bl
948	10.8	Bl	955	11.0	Sz	*101058a*			103769			018	8.5	Mc	947	11.3	En
950	11.0	dK	959	11.2	Rc	924	11.7	Bl	930	12.6	Fc	019	8.9	Rb	950	11.2	En
950	11.1	En	964	10.9	Md	927	12.1	Ht	933	13.0	Ks	019	10.0	Dl	951	11.4	Ht
951	10.9	Ht	965	11.0	Fc	930	12.0	Bl	943	12.0	Dt	020	9.2	Dl	958	10.5	Ht
958	10.3	Ht	967	11.1	Wp	944	12.1	Ht	944	12.3	Fc	020	8.6	Td	959	10.5	En
958	10.5	dK	971[	10.9	Fc	946	12.2	Bl	946	12.9	Pt	022	8.6	Ba	960	10.2	Bl
959	10.3	En	S Car			951[	12.3	Ht	947	13.4	Fc	022	8.8	Jo	973	8.8	Ht
959	10.5	Sl	*100661*			972[	12.3	Ht	948	12.8	Ch	023	8.5	Lo	ST UMa		
960	10.1	Bl	869	6.8	Sl	W Vel			956	12.5	Fc	023	8.5	Dl	112245		
966	9.6	dK	892	5.7	Df	*101153*			959	12.3	Fc	023	8.6	Hm	933	6.6	Ks
972	9.2	dK	896	5.6	Df	919[	12.0	Ht	965	12.0	Cm	026	8.5	Hm	969	6.7	Ks
972	9.8	Ht	904	5.4	Df	924	12.7	Bl	969	12.2	Ks	V Hya			X Cen		
977	8.9	Sl	904	5.8	Sl	946	12.7	En	974	12.6	Rb	*104620*			*114441*		
979	8.8	dK	922	6.4	dK	951	12.0	Ht	974	11.9	Pt	924	8.0	Bl	925	12.2	Bl
985	8.8	dK	924	6.5	Bl	973	12.3	Ht	976	11.2	Fc	930	8.0	Bl	927	12.8	Ht
991	8.6	dK	926	6.2	Sl	S Sex			978	12.5	Hi	930	8.7	Fc	946	13.1	En
002	8.9	dK	926	6.4	Ht	102900			979	12.4	Wd	941	8.1	Bl	950	13.5	En
007	9.2	dK	930	6.5	Ht	871	9.6	Kd	980	12.3	Hf	946	7.0	Pt	959[	13.1	En
V Leo			930	6.8	Bl	873	9.3	Kd	980	12.3	Wd	946	8.2	En	975[	13.1	Ht
095421			931	6.7	dK	877	9.1	Kd	981	11.0	Mc	947	8.7	Fc	AD Cen		
930	9.8	Fc	937	6.7	dK	884	9.1	Kd	982	12.3	Jo	948	8.2	Ch	*114858*		
933	9.8	Fc	941	7.1	Bl	887	9.0	Kd	982	12.2	Fc	948	8.9	Bl	927	9.4	Ht
944	9.8	Fc	943	6.7	En	888	8.9	Kd	985	12.0	Cm	950	8.0	En	944	9.7	Ht
946	9.5	Pt	944	6.9	Ht	895	9.0	Kd							953	9.4	Ht

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
AD CEN			Z UMA			T VIR			SS VIR			Y VIR			T UMA		
114858			115158			*120905*			122001			*122803*			123160		
958	9.4	Ht	996	8.0	Bu	929	12.6	Mw	970	6.9	Rb	930	10.7	Fc	967	8.7	Wd
973	9.5	Ht	997	8.1	Rb	947	12.5	Pt	970	7.7	Hf	931	11.3	Fc	967	8.1	Cl
W CEN			997	8.4	Wp	974	12.5	Pt	973	6.8	Md	943	11.6	Bm	967	8.6	Wp
115058			997	7.9	Hf	003	12.5	Es	976	6.9	B	944	11.9	Fc	969	8.6	Sa
924	11.4	Bl	997	8.2	Wa	R CRV			977	7.3	Jo	950	11.8	Bm	969	8.9	Gy
927	12.2	Ht	998	8.1	Bs	*121418*			978	7.4	Cl	954	12.0	Ap	969	8.9	Jo
930	12.0	Bl	001	8.2	Bs	904	8.0	Sl	979	7.2	Kn	956	12.3	Fc	969	8.9	Rc
941	12.2	Bl	002	8.0	Wd	922	9.0	Mw	979	7.4	Hf	959	12.3	Fc	970	8.7	Hf
943	12.2	En	002	8.2	Kp	926	8.9	Sl	979	7.0	Jo	966	12.6	Be	970	8.7	Wd
946	12.2	En	002	7.8	Rb	926	8.9	Ks	980	7.4	Wd	974	12.8	B	970	9.0	Hm
950	12.5	En	002	8.1	Hf	929	8.9	Mw	980	6.8	Md	U CEN			973	8.9	Md
959	12.6	En	003	8.0	Kn	930	9.0	Kd	982	6.8	Jo	*122854*			974	9.0	Sa
973	12.6	Ht	003	8.0	Hb	930	9.2	Fc	987	7.1	Jo	924	12.4	Bl	974	8.7	Hv
Z UMA			005	8.0	Bu	932	9.1	Kd	987	6.7	Sz	946	12.8	En	974	9.1	Ca
115158			008	8.2	Bs	943	9.6	Bm	990	7.0	Hf	947	13.0	Bl	974	8.6	Cl
943	8.2	OK	009	8.1	Rb	944	10.0	Fc	995	6.8	Jo	973	12.3	Ht	974	9.0	Kg
965	7.7	Rb	010	8.1	Rb	948	9.8	Kd	001	6.6	Jo	T UMA			974	8.9	Pt
967	7.8	Hf	010	6.9	Hh	945	10.0	Kd	004	6.7	Jo	123160			975	8.9	Ra
967	7.5	Wp	010	8.1	Gy	946	10.0	Kd	008	6.8	Jo	930	8.1	Fc	975	8.8	Bu
967	7.9	Wd	010	8.1	Bs	947	10.0	Kd	T CVN			931	8.0	Fc	976	9.0	Sa
969	7.8	Hf	011	7.6	Cx	947	10.5	Pt	122532			933	8.1	Fc	976	9.2	Mc
970	7.7	Hf	012	7.8	Bu	949	10.1	Kd	944	10.5	Fc	933	8.0	Ks	976	9.3	Hf
970	7.9	Kp	013	7.9	Kp	949	10.3	Sx	947	10.4	Pt	934	7.6	Ch	976	9.0	Gy
970	7.7	Rb	013	7.9	Rb	950	10.6	Bm	952	10.2	Rc	938	8.0	Hm	977	9.1	Md
974	7.8	Kp	014	7.9	Wd	950	9.4	Mw	954	9.5	Ap	942	8.6	Rc	977	8.8	Bc
974	7.7	Rb	014	8.0	Hf	952	10.3	Sx	956	10.1	Fc	942	7.7	Hm	977	8.8	Hv
977	7.8	Kp	014	8.1	Sh	954	10.6	Kd	958	10.0	Md	944	8.0	OK	977	9.0	Jo
977	7.8	Cx	015	8.2	Kp	956	10.6	Fc	959	9.9	Fc	945	7.8	Hm	977	9.2	Lr
978	7.9	Kp	016	7.9	Bs	959	10.7	Sl	964	10.2	Md	947	8.1	Pt	977	9.0	Hm
979	7.9	Kp	018	7.4	Hb	960	10.5	Kn	966	10.4	Fc	947	8.6	Cm	977	9.2	Kg
979	7.7	Rb	020	8.3	Wp	962	10.5	Kd	966	10.2	Hi	948	8.2	Hm	977	9.0	Wa
980	7.8	Kp	021	7.7	Rb	966	10.6	Fc	970	10.1	Rb	949	8.3	Sx	978	9.0	Ch
980	7.9	Wd	R COM			972	11.1	Kd	970	9.9	Hf	949	7.7	Ra	978	9.0	Sa
982	8.1	Kp	115919			974	11.1	Pt	972	9.9	Rc	952	8.7	Rc	978	9.1	Bc
982	7.8	Rb	926	9.7	Ks	977	10.9	Sl	973	9.9	Md	954	8.6	Cm	978	9.1	Hv
982	7.7	Cx	930	9.7	Fc	982	11.3	Kd	974	10.0	Pt	955	8.0	Md	978	9.3	Gy
982	7.9	Hf	944	10.7	Fc	RY UMA			977	10.0	Jo	956	8.5	Sa	978	8.6	Cl
982	8.4	Bs	946	10.7	OK	121561			978	10.0	Hi	956	8.2	Bc	978	9.1	Rc
984	7.8	Rb	947	10.6	Fc	943	7.6	Lt	979	9.9	Hf	956	8.2	Hv	979	8.6	Sq
984	7.8	Hf	966	11.9	Fc	953	7.7	Lt	982	10.0	Jo	956	8.6	Fc	979	9.3	Bc
984	8.2	Bs	980	11.6	Hi	961	7.6	Lt	982	10.4	Bs	957	8.2	Bc	979	9.2	Hv
985	8.1	Bs	SU VIR			966	7.6	Lt	984	10.1	Rc	957	8.2	Hv	979	9.1	Hf
986	7.7	Cx	120012			010	7.6	Lt	985	10.2	Jo	957	8.9	Rc	979	8.9	Bs
986	7.7	Hf	930	10.6	Fc	SS VIR			987	9.9	Wd	958	8.3	Ra	979	9.6	Dl
986	7.8	Hb	944	10.2	Fc	122001			988	10.0	Jo	958	8.2	Md	979	9.1	Rb
986	8.2	Kp	976	10.9	B	922	8.1	Mw	990	10.1	Hf	959	8.5	Fc	980	9.1	Sa
987	7.8	Rb	947	9.6	Pt	929	8.9	Mw	995	10.4	Jo	960	8.2	Md	980	9.4	Md
987	8.1	Hf	947	10.1	Fc	930	8.1	Fc	001	10.0	Hi	960	8.4	Sa	980	9.2	Hv
987	8.0	Kp	956	10.3	Fc	931	8.1	Fc	001	10.4	Jo	961	8.2	Hv	980	9.1	Wa
989	8.0	Kp	959	10.3	Fc	944	8.1	Fc	002	10.2	Pt	962	8.2	Hv	981	9.3	Mc
990	7.2	Hh	966	10.3	Fc	950	7.9	Mw	004	10.7	Jo	962	8.5	Cl	981	9.1	Hv
990	8.1	Hf	970	10.5	Hf	956	7.2	Md	006	10.1	Rc	964	8.5	Es	981	9.5	Gy
990	8.1	Kp	971	10.3	Fc	956	8.0	Fc	010	10.5	Jo	964	8.2	Md	981	8.8	Cl
991	8.2	Me	974	11.2	Pt	958	7.4	Cl	014	10.0	Rc	965	8.6	Sa	982	9.0	Hm
994	8.5	Gy	977	10.9	Jo	959	7.8	Fc	015	10.5	Jo	965	8.4	Cm	982	10.2	Bs
994	7.8	Rb	982	11.5	Jo	966	7.9	Fc	015	10.3	Hi	965	8.9	Rb	982	9.3	Jo
994	8.2	Hf	011	13.0	Cm	966	6.9	Be	016	9.9	Md	966	8.5	Fc	983	9.2	Hv
995	7.8	Rb				969	7.0	Wd				967	8.7	Hf	983	9.4	Gy

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
T UMA			T UMA			T UMA			R VIR			S UMA			S UMA		
123160			123160			123160			123307			123961			123961		
983	9.0	Ra	000	9.6	Cm	019	10.6	Dl	988	8.2	Rc	956	8.6	Mc	980	9.5	Sa
984	9.5	Hf	000	9.7	Hv	020	10.9	Dl	990	7.9	Rc	956	8.4	Sa	980	9.5	Hv
984	9.1	Bs	001	9.6	Wd	020	10.0	Wp	990	7.7	Hf	957	8.6	Mc	980	10.2	Wa
984	9.0	Cm	001	9.6	Jo	023	10.0	Jo	995	7.6	Rc	957	8.7	Bc	981	9.8	Mc
985	9.5	Mc	001	10.4	Bs	R VIR			995	7.3	Jo	957	8.6	Rc	981	9.6	Hv
985	9.2	Gy	002	9.8	Sa	123307			001	6.9	Jo	958	8.4	Ra	981	10.1	Gy
985	9.3	Hm	002	9.8	Pt	920	9.5	Fn	002	7.2	Pt	960	8.7	Sa	981	9.5	Fn
985	9.5	Bs	002	10.0	Mn	922	9.4	Mw	003	6.9	Jo	961	8.9	Mc	981	9.6	Cl
985	9.3	Dl	002	10.0	Dl	926	9.6	Ks	006	7.4	Hf	962	8.8	Fn	982	10.2	Fc
985	9.0	Cm	003	9.6	Bc	929	9.9	Mw	006	7.0	Rc	962	9.0	Cl	982	9.5	Hm
986	9.2	Bu	004	9.6	Bc	930	10.0	Fc	010	7.0	Rc	962	9.0	Mc	982	9.7	Jo
986	9.1	Sa	004	9.7	Cm	931	9.9	Fc	011	7.0	Jo	965	8.8	Sa	983	9.6	Hv
986	9.4	Hm	004	9.6	Hv	932	9.7	Fn	011	7.2	Mc	965	8.9	Cm	983	10.0	Rb
986	9.2	Hv	005	9.6	Bu	947	9.8	Fn	014	7.2	Rc	965	9.0	Rb	983	10.2	Gy
987	9.0	Sz	006	9.7	Rc	947	9.9	Pt	015	6.8	Ba	965	8.8	Jo	983	9.7	Wh
987	9.4	Bc	006	9.7	Md	949	9.7	Sx	016	7.3	Rc	967	9.0	Hf	983	10.2	Ra
987	9.3	Pk	007	9.8	Hv	950	9.5	Mw	018	6.8	Mc	967	9.0	Wd	984	9.5	Hf
987	9.3	Hv	008	9.8	Jo	952	9.8	Rc	018	7.4	Rc	967	8.0	Cl	985	9.9	Mc
987	9.6	Mc	008	10.6	Mn	953	9.7	Fn	019	7.6	Hb	967	9.2	Wp	985	10.3	Gy
987	9.7	Jo	008	10.2	Bs	955	9.8	Rc	025	7.7	Rc	969	8.8	Sa	985	10.2	Hm
987	9.1	Sa	009	10.5	Sa	956	9.8	Fc	RS UMA			969	9.2	Gy	985	10.4	Dl
988	9.2	Bc	009	10.0	Es	959	9.9	Fc	123459			970	9.0	Hf	985	10.0	Cm
988	9.6	Pk	009	9.9	Gy	959	9.5	Md	933	12.9	Ks	970	9.2	Wd	986	9.8	Sa
988	9.2	Hv	009	9.8	Wd	959	9.5	Sq	943	13.6	Bm	970	8.7	Hm	986	9.7	Hv
989	9.1	Wd	009	9.7	Hv	959	9.7	Rc	947	13.0	Cm	971	9.1	Rc	987	10.4	Pk
989	8.8	Cm	009	10.5	Dl	964	9.5	Md	947	13.5	Pt	973	9.6	Sx	987	9.7	Hv
989	9.3	Hv	010	9.8	Wd	966	9.3	Be	950	13.6	Bm	974	8.9	Sa	987	9.8	Mc
989	9.0	Fl	010	10.1	Cm	966	9.8	Fc	962	[12.6	Cl	974	9.2	Hv	987	9.7	Sa
989	9.2	Ca	010	10.1	Kn	967	9.5	Jo	975	12.9	Ra	974	9.3	Cl	987	10.0	Bc
989	9.4	Rc	010	10.1	Dl	970	9.2	Rb	987	13.2	Wd	974	9.6	Kg	987	10.0	Jo
989	9.1	Sa	010	9.7	Cm	971	9.4	Rc	013	[13.2	Rb	974	10.0	Pt	987	10.2	Sz
990	9.8	Kg	010	9.7	Kg	973	9.2	Md	024	[13.2	Wd	975	9.3	Bu	988	9.9	Bc
990	9.4	Bc	010	10.3	Bs	973	8.6	B	S UMA			975	9.5	Ra	988	9.9	Hv
990	9.4	Hv	011	10.5	Dl	973	9.2	Sx	123961			976	9.2	Sa	988	10.2	Pk
990	9.4	Mn	012	10.2	Es	974	9.1	Pt	906	8.2	Fn	976	9.5	Mc	989	10.0	Fn
990	9.4	Hf	012	9.8	Bc	975	8.7	Mc	920	8.0	Fn	976	9.4	Hf	989	10.0	Hv
991	9.3	Me	012	9.9	Pk	976	9.0	Rc	932	8.0	Fn	976	9.7	Gy	989	10.0	Cm
992	9.4	Bc	012	10.3	Cm	976	8.7	Mc	933	8.0	Ks	976	9.2	Fn	989	10.2	Fl
992	9.0	Cm	013	10.2	Es	977	8.9	Jo	934	7.9	Ch	977	9.3	Bc	989	10.3	Ca
992	9.3	Hv	013	10.0	Bc	978	8.9	Rc	938	8.3	Hm	977	9.3	Hv	989	10.2	Wd
992	9.6	Ar	013	10.5	Rb	978	8.7	Wd	942	8.0	Rc	977	9.4	Jo	989	9.7	Rc
993	9.3	Dl	013	10.0	Cm	979	8.5	Hf	942	8.4	Hm	977	9.5	Lr	989	10.1	Sa
993	9.4	Hv	013	10.0	Hv	979	8.9	Ch	943	8.7	OK	977	8.9	Hm	990	10.1	Hh
994	9.5	Gy	013	10.6	Dl	979	9.0	Dt	945	8.5	Hm	977	9.5	Kg	990	10.2	Bc
994	9.3	Wd	014	9.9	Sz	980	8.7	Md	947	8.1	Fn	977	10.1	Wa	990	10.1	Hv
994	9.7	Hf	014	10.0	Bc	980	8.8	Rc	947	8.5	Hm	978	9.2	Ch	990	10.1	Mn
995	9.4	Jo	014	10.1	Hv	981	9.1	Bk	947	8.6	Cm	978	9.0	Sa	990	9.8	Hf
996	9.6	Hv	014	10.3	Wa	981	8.4	Mc	947	8.1	Pt	978	9.4	Bc	991	10.0	Me
997	9.3	Cm	014	10.8	Mn	982	8.6	Hb	948	8.4	Hm	978	9.4	Hv	992	10.3	Bc
997	9.5	Rb	014	10.2	Wp	982	8.2	Jo	949	8.6	Sx	978	9.5	Gy	992	10.0	Cm
997	9.6	Hf	015	9.8	Rc	983	8.4	Bu	949	8.3	Ra	978	9.5	Cl	992	10.3	Hv
997	9.6	Wa	015	9.9	Bc	984	8.4	Rc	949	8.4	Hm	978	9.3	Rc	992	10.6	Ar
997	9.5	Wp	015	9.9	Hv	987	8.3	Mc	951	8.4	Hm	978	9.2	Hm	994	10.0	Hf
997	9.6	Sa	015	9.8	Jo	987	8.2	Ba	952	8.4	Rc	979	9.7	Sq	994	10.5	Gy
998	9.6	Bs	016	10.8	Bs	987	7.8	Jo	953	8.4	Fn	979	9.5	Bc	994	10.3	Wd
999	9.9	Bc	018	10.7	Mc	987	8.5	Dt	956	8.6	Bc	979	9.4	Hv	995	10.0	Jo
999	9.8	Hv	019	10.0	Md	987	7.6	Sz				979	9.5	Hf	995	10.8	Fn
000	9.7	Bc	019	10.8	Rb							979	10.0	Dl	997	10.3	Cm

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
S UMA			U VIR			U OCT			R HYA			T UMI			RT CEN		
123961			124606			*131283*			*132422*			133273			*134236*		
997	10.4	Rb	930	11.3	Fc	972	8.8	dK	975	6.2	Ht	958	12.7	Cl	926	12.7	Ht
997	10.5	Hf	931	11.1	Fc	975	9.5	Ht	977	6.0	Jo	974	11.8	Sf	930	12.2	Ht
997	10.8	Wp	944	10.0	Fc	979	9.4	dK	979	5.8	Jo	977	12.3	Cl	945	11.2	Ht
997	10.6	Wa	947	9.9	Pt	985	9.6	dK	979	5.9	dK	979	11.7	Sf	945	11.2	En
997	10.8	Sa	954	9.7	Ap	991	10.1	dK	979	5.5	Ch	979	12.4	Hf	947	11.5	Bl
999	10.5	Bc	956	9.4	Fc	002	10.9	dK	982	5.8	Kd	980	11.8	Kn	951	10.6	Ht
999	10.5	Hv	957	8.8	Md	007	11.1	dK	983	5.6	Jo	982	11.0	Jo	952	11.1	En
000	10.4	Bc	958	9.2	Cl	V CVN			984	5.2	Kd	982	11.8	Fc	958	10.0	Ht
000	10.4	Cm	959	9.5	Sq	131546			985	5.2	Kd	984	11.5	Gy	959	10.9	En
000	10.4	Hv	959	9.3	Fc	948	7.9	Lt	985	5.3	dK	985	11.2	Jo	R CVN		
001	10.6	Wd	964	9.1	Md	988	7.3	Lt	985	5.5	Jo	985	11.6	Sf	134440		
001	10.4	Jo	966	8.5	Fc	010	7.2	Lt	991	5.0	dK	985	11.7	Bs	926	12.0	Ks
002	11.2	Pt	966	9.0	Be	V VIR			002	4.8	dK	987	11.3	Wd	932	11.9	Fn
003	10.7	Bc	973	8.5	B	*132202*			007	4.6	dK	991	11.1	Hf	944	11.6	Fc
004	10.7	Bc	974	8.5	Md	966	9.3	Be	S VIR			992	10.4	Cm	947	11.1	Fn
004	10.5	Cm	974	8.5	Pt	977	9.4	Jo	*132706*			995	9.7	Jo	947	11.4	Pt
004	10.7	Hv	975	8.1	Lt	979	9.4	Hf	926	12.5	Ks	001	9.5	Jo	953	10.5	Fn
006	10.4	Rc	977	8.0	Jo	980	9.6	Hf	926	12.3	Ht	002	10.2	Hf	954	10.4	Ap
008	10.6	Jo	978	8.3	Cl	980	9.6	Wd	929	12.4	Mw	002	10.3	Wd	959	10.3	Fc
008	10.5	Rc	978	8.5	Hi	984	9.4	Hb	930	11.9	Ht	003	10.1	Kn	966	10.3	Fc
009	10.7	Wd	979	8.6	Hf	984	9.3	Jo	930	12.2	Fc	009	10.1	Cm	970	10.3	Hf
009	11.3	Dl	980	8.7	Wd	987	9.4	Jo	934	12.8	Ch	010	9.3	Jo	974	10.3	Pt
009	11.1	Gy	982	8.2	Jo	011	10.7	Jo	945	11.9	Ht	012	9.5	Bu	976	9.9	Fn
010	10.7	Hh	982	8.0	Lt	R HYA			945	12.8	En	015	9.3	Jo	976	10.0	Kn
010	10.9	Cm	987	8.0	Jo	*132422*			947	12.5	En	018	9.3	Bu	976	10.2	Hf
010	11.2	Kn	990	7.9	Hf	922	7.0	dK	947	12.0	Pt	023	9.0	Jo	977	9.6	Jo
010	11.3	Dl	995	8.2	Jo	924	7.3	Bl	951	12.1	Ht	T CEN			977	9.8	Cx
011	11.6	Dl	001	8.0	Hi	926	7.6	Ht	952	12.5	En	*133633*			981	10.0	Fn
011	11.3	Cm	001	8.0	Jo	930	7.6	Ht	958	12.2	Wg	919	7.5	Ht	982	9.5	Jo
012	11.0	Bc	002	7.8	Pt	930	7.8	Kd	959	12.2	En	924	6.6	Bl	982	9.5	Bs
012	11.2	Pk	008	8.1	Lt	930	7.3	Bl	974	12.0	Pt	926	7.0	Ht	982	10.3	Fc
013	11.0	Bc	008	8.0	Jo	931	6.9	dK	977	12.5	Jo	926	6.8	Sl	985	10.2	Hb
013	11.2	Cm	015	8.2	Hi	932	7.9	Kd	980	12.1	Ch	930	6.4	Bl	985	9.4	Jo
013	11.5	Rb	RV VIR			938	6.8	dK	982	12.0	Fc	930	6.8	Ht	986	9.6	Cx
013	10.8	Hv	*130212*			941	7.2	Bl	982	12.0	Jo	932	6.4	Kd	987	10.2	Hf
013	11.5	Dl	956	13.1	Fc	944	6.9	dK	987	12.2	Jo	933	6.7	Lt	987	10.3	Wd
014	10.6	Sz	978	13.8	Ap	944	7.6	Kd	987	11.4	Sz	941	6.3	Bl	987	9.4	Sz
014	11.0	Bc	U OCT			945	7.6	Ht	009	11.5	Pt	943	6.1	En	999	9.2	Bu
014	11.0	Hv	*131283*			945	7.6	En	011	11.7	Jo	943	6.6	Lt	002	9.9	Hf
014	11.2	Wa	924	8.2	dK	946	7.8	Kd	RV CEN			946	6.6	Ht	002	9.9	Wd
014	11.1	Wp	924	8.5	Bl	947	7.0	Pt	*133155*			946	6.3	Kd	002	9.8	Kn
015	11.0	Bc	927	8.6	Ht	948	7.5	Bl	924	8.0	Bl	948	6.9	Lt	004	9.6	Jo
015	11.0	Hv	930	8.5	Bl	948	7.0	Ch	926	8.6	Ht	948	6.4	Bl	009	9.7	Pt
015	10.7	Jo	931	7.8	dK	949	7.7	Kd	930	8.2	Ht	949	6.2	Kd	010	9.4	Jo
018	11.0	Mc	938	7.8	dK	950	6.5	dK	930	8.2	Bl	951	6.4	Ht	012	9.3	Bu
019	11.5	Rb	941	8.2	Bl	951	7.5	Ht	941	7.8	Bl	952	6.2	En	015	9.3	Jo
019	11.6	Dl	944	7.8	dK	952	7.4	En	944	8.2	Ht	953	6.9	Lt	017	9.1	Jo
020	11.6	Dl	945	8.4	Ht	954	7.7	Kd	945	7.9	En	954	6.4	Kd	019	9.7	Rb
020	11.3	Wp	946	8.7	En	955	7.6	Kd	948	8.4	Bl	955	6.3	Kd	019	9.4	Hb
023	11.0	Jo	948	8.4	Bl	958	6.8	dK	951	8.2	Ht	958	6.2	Ht	022	8.7	Jo
024	11.7	Wd	950	7.8	dK	958	7.3	Ht	952	7.6	En	959	6.5	En	RX CEN		
RU VIR			950	8.6	En	959	7.0	En	958	8.1	Ht	959	6.2	Sl	*134536*		
124204			951	8.6	Ht	962	7.4	Kd	960	7.2	En	962	6.8	Lt	924	11.0	Bl
947	12.4	Pt	958	8.6	Ht	963	6.7	Kd	973	8.0	Ht	973	7.3	Lt	926	10.7	Ht
966	14.0	L	958	8.0	dK	964	6.6	Kd	T UMI			977	6.5	Sl	930	9.7	Ht
978	13.5	Ap	960	8.7	En	966	6.5	dK	133273			RT CEN			930	9.4	Bl
002	12.4	Pt	960	8.4	Bl	972	6.4	dK	930	13.3	Fc	*134236*			941	9.2	Bl
			966	8.4	dK	974	6.0	Pt	933	12.9	Ks	924	12.7	Bl	945	9.0	Ht

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
RX CEN			R CEN			U UMI			UV BOO			V BOO			V BOO		
134536			*140959*			141567			141826			142539a			142539a		
945	9.2	En	931	7.0	dK	980	11.3	Hf	933	8.0	Lt	931	9.9	Fc	002	8.4	Jo
948	9.3	Bl	937	7.2	dK	980	11.3	Wd	948	7.9	Lt	934	9.6	Ch	002	9.6	Dl
951	9.1	Ht	942	7.3	Bl	981	10.8	Cl	953	7.9	Lt	938	9.9	Hm	002	8.5	Mn
952	9.0	En	943	7.3	En	982	11.5	Hi	963	7.9	Lt	940	9.6	Ra	002	9.3	Hm
958	9.6	Ht	944	7.6	dK	982	11.0	Fc	S BOO			942	9.9	Hm	003	8.7	Hb
959	9.2	En	944	7.5	Ht	984	11.4	Hf	141954			944	9.0	Wh	004	8.5	Dh
T APS			945	7.3	En	985	10.7	Jo	931	9.0	Fc	944	9.8	Fc	005	8.8	Bu
134677			948	7.8	Bl	985	10.8	Sf	934	8.8	Ch	945	9.6	Fc	006	8.8	Sq
927[	13.2	Ht	950	7.6	dK	987	11.2	Wp	944	10.0	Fc	947	9.1	Pt	007	8.8	Dh
947[	13.2	Bl	951	7.6	Ht	987	11.8	Sz	945	10.0	Fc	949	9.3	Wg	008	8.5	Jo
951[	13.2	Ht	952	7.3	En	987	10.8	Pk	947	10.2	Pt	952	9.3	Sx	008	8.4	Mn
975	13.1	Ht	952	8.0	Df	987	11.2	Hi	952	10.4	Sx	959	9.6	Fc	009	9.2	Hm
RR VIR			958	8.1	Ht	988	10.8	Jo	956	10.9	Kt	962	8.9	Dh	010	8.8	Dl
135908			958	7.5	dK	988	10.8	Pk	958	10.8	Cl	965	8.9	Hf	010	9.1	Hm
947	11.4	Pt	959	7.5	En	989	10.8	Wp	959	10.5	Fc	966	8.9	Fc	010	8.9	Pt
954	12.0	Ap	959	7.1	Sl	989	10.8	Wa	961	10.9	Kt	969	8.9	Dh	011	8.3	Jo
959	11.8	Fc	961	8.2	Df	990	10.7	Ra	962	10.9	Kt	973	8.9	Sx	011	8.9	Dl
968	12.4	Be	962	7.4	dK	991	10.8	Hf	965	10.8	Cm	974	8.9	Sf	011	9.2	Hm
974	12.9	Pt	963	7.8	En	992	10.9	Hi	966	11.3	Fc	974	9.0	Pt	012	9.1	Hm
009[	12.8	Pt	963	8.5	Df	992	10.8	Ar	971	11.3	Fc	976	9.0	Kn	013	9.1	Cr
Z BOO			965	8.0	En	992	10.5	Cm	974	11.7	Pt	976	9.5	Mc	013	8.7	Dh
140113			966	7.4	dK	994	10.9	Gy	976	11.9	Kn	976	8.9	Hf	014	8.4	Wd
944	12.8	Fc	971	8.5	Df	995	10.5	Jo	977	11.2	Kt	977	8.5	Dh	014	8.2	Sh
954	13.6	Ap	973	8.3	Ht	997	10.7	Hf	977	11.8	Jo	977	8.7	Jo	014	8.7	Mn
959	13.2	Fc	975	8.8	Df	997	11.8	Wp	977	11.8	Cl	978	8.7	Dh	014	8.4	Hf
979	13.8	Wa	977	7.5	Sl	997	10.7	Wa	979	12.3	Hf	979	9.0	Sq	015	8.2	Jo
Z VIR			979	7.4	dK	997	10.5	Cm	980	12.2	Wd	979	8.7	Bu	015	9.0	Dh
140512			985	7.2	dK	000	10.5	Cm	982	12.2	Jo	979	9.5	Dl	015	8.3	Sq
979	15.0	Wu	991	7.2	dK	001	10.7	Hi	982	12.3	Fc	980	9.0	Hb	016	9.1	Hm
008[	14.8	Wu	002	6.8	dK	003	10.6	Kn	985	12.7	Cm	980	8.5	Dh	018	9.1	Mc
RU HYA			007	6.7	dK	004	10.4	Cm	986	12.2	Gy	982	8.8	Dh	018	8.6	Hb
140528			U UMI			004	10.6	Hi	006	13.5	Pg	982	8.8	Jo	019	9.2	Hm
924	8.4	Bl	141567			004	10.6	Jo	011	13.9	Cm	982	8.7	Fc	020	9.3	Hm
926	8.2	Ht	944	12.2	Fc	007	10.4	Pk	RS VIR			983	8.3	Dh	021	8.7	Sx
930	8.7	Ht	947	11.9	Cm	008	10.5	Pk	142205			984	8.9	Hf	R CAM		
930	8.9	Bl	947	11.8	Pt	009	10.5	Gy	926	13.9	Ks	985	9.6	Mc	142584		
941	8.9	Bl	949	11.8	Ch	009	10.7	Md	943	14.0	Bm	985	8.6	Jo	944	12.5	Fc
945	9.6	Ht	953	12.0	Ra	009	10.4	Pk	949	13.4	Ch	985	9.6	Hm	954	13.0	Ap
945	9.2	En	954	11.5	Ap	009	10.5	Pt	950	14.0	Bm	985	8.7	Sf	956	12.6	Fc
948	9.0	Bl	955	12.0	Md	010	10.5	Jo	956	13.5	Md	985	9.5	Dl	976	12.0	Kn
951	9.3	Ht	955	11.9	Hi	010	10.6	Hi	974	13.1	Rb	986	8.2	Dh	977	11.1	Jo
952	9.8	En	956	11.8	Fc	010	10.5	Cm	978	12.6	Ap	987	8.7	Dh	982	11.0	Jo
958	9.7	Ht	959	11.6	Fc	012	10.5	Pk	979	10.5	Jo	987	8.9	Wd	982	11.2	Fc
R CEN			959	11.8	Md	013	10.5	Cm	982	12.3	Fc	987	9.7	Hm	984	11.5	Gy
140959			964	11.8	Md	013	10.6	Hf	986	11.7	Hf	988	8.6	Jo	985	11.0	Jo
837	7.0	Df	967	11.4	Wp	014	10.1	Wa	987	12.0	Dt	988	8.7	Dh	988	11.0	Jo
844	6.6	Df	972	11.0	Ra	014	10.4	Hi	987	12.0	Rb	989	8.6	Dh	002	9.8	Jo
865	5.6	Df	973	10.8	Sq	014	10.2	Wp	002	9.9	Wd	989	8.8	Bu	003	9.6	Kn
888	5.4	Df	973	11.8	Md	015	10.3	Jo	002	9.8	Hf	990	8.7	Mn	004	9.6	Hi
892	5.4	Df	974	11.2	Sf	016	10.8	Md	004	9.8	Jo	992	8.7	Dh	008	9.3	Jo
895	5.4	Df	974	11.5	Pt	020	10.3	Wp	006	9.5	Pg	993	8.1	Dh	011	9.2	Jo
904	5.8	Df	975	11.7	Hi	UV BOO			010	9.6	Rb	994	8.8	Sq	015	9.0	Jo
922	6.5	dK	976	11.6	Kn	141826			010	9.5	Jo	997	8.7	Hf	023	8.5	Jo
924	7.5	Bl	977	11.9	Hf	858	7.9	Lt	015	8.6	Ba	997	8.0	Dh	R BOO		
926	7.3	Ht	977	10.6	Jo	912	7.9	Lt	016	9.3	Jo	998	8.3	Dh	143227		
926	6.6	Sl	977	11.1	Cl	923	7.8	Lt	022	8.5	Ba	000	8.2	Dh	926	10.8	Ks
930	7.2	Ht	977	11.0	Wa	927	8.0	Lt				001	8.7	Dh	929	12.0	Mw
930	7.5	Bl	978	11.7	Hi	930	8.0	Lt				002	8.5	Kn	931	10.8	Fc

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
Y LIB			S CRB			RU LIB			S UMI			T NOR			R CRB		
150605			151731			*152714*			153378			*153654*			154428		
978	7.8	Ap	986	12.1	Hf	950	8.7	Mw	976	10.8	Hf	944	12.0	Ht	948	8.1	Hm
979	8.4	Hf	987	11.9	Ba	958	9.9	Fc	977	10.5	Bc	945	12.2	En	949	8.1	Kd
979	8.4	Jo	990	12.0	Wp	966	10.0	Fc	977	10.6	Hv	951	12.2	Ht	949	8.1	Pt
982	8.4	Jo	990	11.9	Wa	971	10.2	Fc	977	10.9	Wa	952	12.5	En	949	8.1	Sx
983	8.4	Fc	990	12.0	Cm	973	10.2	Fc	978	10.6	Bc	973[	12.8	Ht	949	8.3	Hm
985	8.5	Jo	995	11.8	Ba	973	10.1	Bu	978	10.8	Hv	RR CRB			950	8.0	Sx
987	8.2	Wd	002	11.5	Cm	973	10.6	B	978	10.9	Gy	153738			950	8.1	Ra
988	8.3	Jo	002	12.0	Hf	974	11.0	Pt	979	10.8	Hv	943	8.1	Lt	951	8.2	Ch
990	8.4	Hf	002	12.0	Wd	979	10.9	Hf	979	10.6	Jo	949	8.0	Lt	951	7.8	Pt
990	8.1	Cm	004	11.6	Jo	991	11.4	Hf	979	10.9	Dl	953	8.0	Lt	951	8.2	Hm
002	8.0	Jo	006	12.4	Pt	010	12.3	Pt	980	11.4	Hi	956	8.0	Lt	952	8.1	Sx
002	7.8	Cm	007[	10.9	Rl	R NOR			980	10.8	Hf	963	8.0	Lt	952	7.9	Rc
002	8.1	Wd	009	11.7	Ba	*152849*			980	10.8	Wd	975	7.9	Lt	953	7.8	Kd
002	8.2	Hf	010	11.4	Jo	925	9.0	Bl	981	10.9	Gy	008	8.1	Lt	953	7.9	Fn
004	8.0	Kn	010	11.4	Pt	926	9.1	Ht	982	10.8	Jo	Z LIB			953	8.2	Me
005	8.3	Es	015	11.2	Jo	930	9.1	Ht	984	10.8	Hf	*154020*			954	8.1	Fc
007	8.2	Lt	015	11.4	Cm	930	8.9	Bl	984	11.0	Gy	947[	12.7	Bl	954	7.9	Pt
010	7.8	Jo	017	11.0	Jo	942	9.4	Bl	985	11.5	Gy	R CRB			954	8.2	Sx
011	8.2	Lt	018	10.8	Ba	944	9.8	Ht	985	10.7	Jo	154428			954	8.0	Cm
016	8.4	Jo	021	10.7	Jo	945	9.7	En	985	11.4	Sf	888	9.6	Hr	955	8.0	Kd
017	8.3	Es	RS LIB			948	9.7	Bl	985	11.0	Dl	914	9.0	Bb	955	7.9	Rc
S LIB			*151822*			951	10.2	Ht	986	11.4	Gy	920	9.2	Hr	956	7.6	Fc
151520			919	10.8	Ht	952	10.0	En	987	11.5	Hi	927	8.7	Ks	956	8.0	Pb
929	11.5	Mw	925	10.1	Bl	958	10.4	Ht	989	11.7	Wp	927	8.5	Fc	956	7.9	Ar
947	12.2	Pt	926	10.5	Ht	959	10.2	Bl	989	11.5	Wa	930	9.0	Kd	956	7.9	Bc
949	12.3	Ch	930	10.0	Ht	960	10.0	En	990	12.0	Ra	930	8.3	Fc	956	7.9	Me
974	11.6	Pt	930	9.9	Bl	973	11.2	Ht	991	11.0	Hf	931	8.5	Ch	956	7.9	Hv
979	11.0	Jo	942	9.2	Bl	X LIB			992	11.5	Hi	931	8.4	Fc	956	8.2	Sx
982	10.7	Jo	945	9.8	Ht	*153020*			993	10.9	Dl	932	8.8	Kd	956	8.1	Sa
006	9.6	Wu	945	9.7	En	925	11.6	Bl	994	12.0	Wd	933	8.2	Fc	956	8.0	Pt
010	9.0	Pt	945	10.3	Fc	931	11.7	Bl	994	12.2	Gy	938	8.8	Hm	956	8.1	Hm
010	9.6	Jo	948	9.6	Bl	947	11.8	Bl	995	11.0	Jo	938	8.0	Fc	957	8.1	Hv
S SER			949	9.4	Ch	956	12.3	Fc	997	12.0	Wp	939	8.3	Kd	957	7.8	Rc
151714			951	9.2	Ht	959	11.6	Bl	997	12.1	Wa	940	8.4	Ra	957	8.1	Dh
947	13.2	Pt	952	9.6	En	W LIB			001	11.3	Jo	940	8.4	Ks	957	8.1	Bc
974	12.5	Pt	956	9.1	Fc	*153215*			001	11.6	Hi	941	9.0	Km	957	8.1	Ar
977	12.6	Cl	958	8.8	Ht	925	12.4	Bl	009	12.3	Gy	942	8.3	Sx	957	8.2	Pb
978	12.7	Ap	958	9.0	dK	931	11.5	Bl	009	12.1	Wd	942	8.7	Hm	958	7.6	Ra
990	12.1	Cm	959	9.3	Bl	947	11.3	Bl	010	12.0	Kn	942	8.1	Rc	958	7.6	Fc
002	12.0	Cm	960	9.4	En	949	11.2	Ch	010	11.7	Hi	944	8.1	Fc	958	8.2	Ks
008	12.0	Wu	966	8.5	dK	S UMI			010	11.6	Jo	944	8.2	Kd	959	7.7	Fc
010	11.7	Pt	966	8.0	Fc	153378			010	11.2	Dl	944	8.0	Pt	959	7.7	Rc
010	12.0	Kn	971	8.2	Fc	935	9.8	Ch	010	11.5	Pt	944	8.0	Dt	960	7.6	Sa
S CRB			972	8.2	dK	947	10.5	Cm	011	11.2	Dl	945	8.2	Kd	960	7.6	Rc
151731			973	8.2	Ht	947	9.3	Pt	013	11.5	Dl	945	8.9	Hm	960	7.6	Kd
926	12.2	Ks	979	7.8	dK	948	10.5	Hm	014	12.3	Wa	945	8.1	OK	961	7.0	Pt
931	12.8	Ch	982	7.6	Fc	952	10.4	Sx	014	12.0	Hi	946	7.8	Pt	961	7.6	Sx
940	12.5	Ra	983	7.6	Fc	952	10.4	Ra	014	12.3	Wp	946	8.0	Rc	961	7.4	Rc
943	12.0	Dt	985	7.6	dK	953	10.4	Sx	019	11.6	Dl	946	8.0	Kd	961	8.0	Hv
944	12.0	Dt	991	7.7	dK	956	9.6	Bc	020	12.6	Wp	947	8.1	Fc	961	7.9	Dh
947	12.9	Pt	002	8.0	dK	956	9.6	Hv	021	11.5	Jo	947	7.9	Pt	962	7.7	Pb
951	12.8	Ch	006	8.0	Wu	957	9.8	Hv	U LIB			947	7.8	Mg	962	7.9	Ar
956	12.4	Cl	007	7.9	dK	957	9.7	Bc	*153620a*			947	8.2	Cm	962	7.7	Dh
965	13.0	Fd	RU LIB			967	10.4	Wp	947[	12.9	Bl	947	7.8	Bb	962	7.2	Pt
974	12.0	Pt	*152714*			969	10.7	Ra	T NOR			947	8.3	Fn	962	7.9	Kd
976	12.4	Hf	945	8.7	Fc	974	10.9	Sf	*153654*			947	8.1	Hm	962	8.1	Hv
982	12.6	Bs	947	9.1	Pt	974	10.6	Pt	926	10.8	Ht	947	8.0	Kd	962	8.2	Fn
985	11.9	Cm	949	9.2	Ch	975	10.6	Ra	930	10.9	Ht	948	8.0	Pt	964	7.6	Fc

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
	R CrB			R CrB			R CrB			R CrB			R CrB			R CrB	
	154428			154428			154428			154428			154428			154428	
964	7.8	Wp	975	7.4	Ra	979	7.4	Rb	985	7.2	Kg	989	7.2	An	998	6.8	Dh
964	7.6	Kd	976	7.2	Kg	979	7.2	Kg	985	7.3	Mg	989	7.7	Kp	998	6.8	Pt
965	7.5	Pb	976	7.7	Wa	979	7.3	Be	985	7.1	Hm	990	7.4	Kd	998	7.1	Am
965	7.5	Jo	976	7.2	An	979	7.2	Dl	985	7.0	Hf	990	7.4	Fn	998	7.0	Bc
965	7.6	Rb	976	7.0	Hm	979	7.6	Wp	985	6.7	Jo	990	7.0	Bc	999	6.9	Hv
965	7.4	Pt	976	7.4	Gy	979	7.2	Gy	985	7.4	Hv	990	7.0	Hv	999	6.9	Bc
965	7.6	Sa	976	7.4	Fn	979	7.3	SE	985	7.2	Gy	990	7.4	Wa	999	6.8	Dh
965	7.3	Dh	976	7.5	Hf	979	7.2	Ra	985	7.4	Me	990	7.5	Kp	000	7.3	Kg
965	8.1	Hf	976	7.6	Dh	980	7.3	Rc	985	6.7	Dl	990	7.0	Pt	000	7.1	Bc
965	7.5	Ra	976	7.5	Lf	980	7.2	Pt	985	7.2	Cm	990	7.0	Hf	000	6.9	Hm
965	7.6	Fc	976	7.4	Sa	980	7.3	Wa	986	7.3	Dh	990	7.2	Wp	000	7.1	Hv
965	7.6	Fd	976	7.4	Ko	980	7.3	Hf	986	7.7	Kd	991	7.1	Kg	000	6.9	Dh
966	7.4	Sx	976	7.6	Ar	980	7.1	Be	986	7.1	Td	991	7.1	Hf	001	7.0	Hv
966	7.7	Kd	977	7.3	Jo	980	7.4	Ar	986	7.4	Hv	991	7.2	Ra	001	6.7	Dh
966	7.4	Fc	977	7.3	Td	980	7.6	Wp	986	7.4	Hf	992	7.0	Ra	001	7.1	Rb
967	7.3	Cm	977	7.1	Hv	980	7.4	Hv	986	7.0	Sa	992	7.0	Bc	001	6.8	Wa
967	7.6	Sx	977	7.2	Cx	980	7.4	Wd	986	7.2	Gy	992	7.1	Dh	001	6.8	Wo
967	8.1	Hf	977	7.4	Sx	980	7.7	Kp	986	7.5	Kp	992	7.0	Hv	001	7.0	Hf
967	7.8	Wp	977	7.5	Hf	980	7.5	Dh	986	7.5	Me	992	7.1	Lf	001	6.7	Jo
968	7.6	Kd	977	7.9	Kp	980	7.8	Sa	986	7.2	Hm	992	6.9	Ar	001	6.7	Ar
968	7.5	Rc	977	7.3	Dh	980	7.0	Hm	986	7.2	Kg	993	7.0	Hv	002	6.9	Dl
968	7.5	Sx	977	7.8	Sa	980	7.1	Ko	987	7.7	Kd	993	7.2	Be	002	6.7	Pt
969	7.5	Kd	977	7.2	Pt	980	7.5	Rb	987	7.6	Sa	993	7.0	Dh	002	7.0	Bc
969	7.4	Ra	977	7.1	Bc	980	7.4	Hb	987	7.6	Wp	993	6.9	Hm	002	6.7	Dh
969	7.8	Wa	977	7.4	Ar	981	7.4	Hv	987	7.1	Hm	993	6.9	Dl	002	7.0	Hv
969	7.8	Wp	977	7.2	Kg	981	7.1	Pt	987	7.4	Rb	993	7.3	Bc	002	6.7	Ar
969	7.6	Ar	977	7.2	Hm	981	7.4	Gy	987	7.2	Kg	993	6.8	Ar	002	7.3	Kp
969	7.6	Sa	977	7.1	Lr	981	7.3	Fn	987	7.1	Td	994	7.2	Gy	002	7.0	Hm
969	7.7	Gy	977	7.2	Wa	981	7.3	Ko	987	7.0	Dt	994	7.6	Rb	002	6.9	Wa
969	7.4	Sx	978	7.4	Td	981	7.1	Rc	987	7.4	Hf	994	7.4	Cm	002	6.9	Wd
969	7.7	Hf	978	7.3	Bb	981	7.2	An	987	6.8	Sz	994	7.1	Td	002	7.1	Rb
969	7.3	Ks	978	7.3	Mg	982	7.1	Gy	987	6.7	Io	995	6.9	Pt	002	7.2	Sa
970	7.2	Wd	978	7.3	Sx	982	7.0	Jo	987	6.9	Bc	995	7.1	Rb	002	6.8	Wp
970	7.5	Hf	978	7.5	Sv	982	7.0	Dh	987	7.1	Gy	995	6.8	Ba	002	6.9	Hf
970	7.5	Sx	978	7.1	Hv	982	7.0	Cx	987	6.9	Ba	995	6.9	Wp	002	6.5	Jo
970	7.5	Kg	978	7.6	Dh	982	7.4	Hv	987	7.2	Dh	995	7.2	Td	003	6.9	Bc
970	7.4	Rb	978	7.7	Kp	982	7.5	Hf	987	7.0	Be	995	6.8	Dl	003	6.6	Dh
970	7.7	Hm	978	7.1	Ar	982	7.7	Kp	987	7.2	Hv	995	6.5	Jo	003	7.1	Hv
971	7.5	Sx	978	7.6	Sa	982	7.4	Hm	987	7.4	Kp	995	7.0	Wa	003	7.1	Kg
971	7.4	Fc	978	7.0	Pt	982	7.0	Sa	988	7.3	Dh	995	7.7	Sa	003	6.7	Pt
972	7.4	Sx	978	7.1	Bc	982	7.4	Bc	988	7.1	Hv	996	7.0	Bc	003	6.7	Ar
972	7.3	Ra	978	7.6	Ku	982	7.5	Rb	988	7.4	Ar	996	6.9	Hm	004	7.2	Gy
973	7.4	Fc	978	7.2	Kg	982	7.0	Kd	988	7.1	Bc	996	6.9	Wp	004	6.8	Lf
973	7.1	Kd	978	7.5	An	982	7.2	Td	988	7.2	Pt	996	7.0	Wa	004	6.9	Hf
973	7.3	Sx	978	7.1	Hm	982	7.3	Fe	988	6.9	Dl	996	7.4	Kd	004	6.9	Bc
974	7.4	Ch	978	7.4	Gy	983	7.4	Gy	988	7.0	Hm	996	7.0	Hv	004	6.9	Hv
974	7.5	Wa	978	7.4	Fn	983	7.2	Dh	989	7.4	Rb	996	6.8	Dh	004	6.8	Ar
974	7.6	Wp	979	7.1	Sh	983	7.4	Hv	989	7.4	Sa	996	6.8	Ar	005	7.2	Bu
974	7.0	Pt	979	7.3	Sx	983	7.1	Gb	989	7.0	Pt	997	6.9	Ar	006	6.8	Hf
974	7.3	Hf	979	7.2	Td	983	7.0	Ar	989	7.3	Cm	997	7.0	Dh	006	6.8	Hm
974	7.3	Sa	979	7.5	Hv	983	7.4	Wa	989	7.2	Bu	997	7.1	Wa	006	6.8	Hv
974	7.4	Sx	979	7.4	Hf	983	7.2	Ra	989	7.1	Kg	997	7.1	Rb	006	7.2	Cm
974	7.8	Kp	979	7.9	Kp	984	7.4	Mg	989	7.2	Wp	997	7.0	Wp	006	6.9	Dl
974	7.4	Rb	979	7.1	Wd	984	7.4	Rb	989	7.1	Hv	997	7.0	Hf	007	7.0	Gy
974	7.1	Rc	979	7.5	Bc	984	7.3	Hf	989	7.2	Wa	997	7.0	Pt	007	6.7	Dh
974	7.2	Kg	979	6.7	Jo	984	7.3	Wd	989	7.1	Fn	997	6.7	Dl	007	7.0	An
975	7.3	Fn	979	7.2	Sq	984	7.3	Gy	989	6.9	Ar	997	7.0	Td	007	6.7	Ar
975	7.4	Sx	979	7.0	Pt	984	6.5	Hm	989	7.3	Dh	997	7.3	Sa	007	7.0	Pk

Variable Star Observations Received During July and August, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
R CrB			R CrB			R CrB			V CrB			V CrB			RZ Sco		
154428			154428			154428			154639			154639			*155823*		
007	6.9	Hv	013	6.9	Be	024	6.8	Wp	978	9.1	Hi	021	7.7	Rb	958	10.5	dK
008	7.1	Pk	013	7.0	Hm	026	7.3	Sx	978	9.0	Md	022	7.4	Es	960	10.2	Kn
008	6.8	Hm	013	7.0	Bc	026	6.6	Pt	979	8.3	Sq	022	7.5	Ba	966	10.0	dK
008	7.3	Cm	013	7.0	Hv	026	7.2	Hm	980	9.4	Wa	023	7.2	Jo	972	9.3	dK
008	7.5	Kp	013	7.1	Pk	027	7.2	Hm	981	7.9	Wh	R Lib			973	9.6	Ht
008	6.6	Jo	013	7.2	Kp	X CrB			982	8.9	Hi	*154715*			974	9.4	Pt
008	7.0	Td	013	6.8	Wp	154536			982	8.8	Hf	929	12.0	Mw	976	8.9	Wa
008	7.1	Je	013	7.1	Cm	948	12.9	Pt	982	8.2	Jo	945	12.5	Ch	976	8.9	Kn
008	6.7	Ar	013	7.0	Dl	951	12.5	Ch	982	8.3	Fc	978	13.9	Ap	978	9.1	Rc
009	7.1	Gy	013	6.7	Pt	957	12.0	Cl	985	8.9	Mc	R Lup			979	9.0	dK
009	6.8	Pt	014	6.9	Bc	974	10.1	Pt	985	8.7	Cm	*154736*			985	9.1	dK
009	7.0	Td	014	6.8	Dh	977	9.7	Jo	987	8.0	Wd	945	12.0	En	985	9.3	Jo
009	6.7	Dh	014	6.9	Hv	978	10.5	Hi	987	8.0	Jo	RR Lib			987	9.3	Jo
009	7.0	Sa	014	7.1	Hm	979	10.7	Sf	987	9.0	Hi	*155018*			988	8.9	Rc
009	6.7	Ar	014	6.9	Wp	987	10.2	Hi	990	8.7	Wp	929	10.8	Mw	989	8.8	Kn
009	6.9	Hv	014	6.8	Wa	989	9.9	Sf	990	8.7	Wa	948	9.4	Pt	990	8.7	Wa
009	6.7	Ba	014	7.0	Wd	992	10.2	Cm	990	8.4	Hh	949	9.4	Ch	990	8.8	Wp
009	7.0	Hm	014	7.0	Hf	001	9.4	Hi	990	8.7	Hf	974	8.0	Pt	991	9.0	dK
009	7.0	Wd	014	7.1	Sh	004	9.5	Hi	992	8.7	Hi	979	8.0	Jo	002	8.9	dK
009	7.0	Rb	014	6.8	Ar	006	9.3	Cm	996	8.3	Wa	982	8.3	Jo	002	8.9	Kn
009	7.1	Pk	015	7.0	Bc	010	9.2	Hi	996	8.3	Wp	982	7.1	Ap	006	8.8	Rc
009	7.2	Bc	015	7.1	Pk	010	8.8	Jo	997	7.8	Ar	987	8.5	Jo	007	8.8	dK
009	7.0	Dl	015	7.0	Hv	010	8.8	Pt	000	7.6	Dh	002	8.4	Jo	010	9.1	Pt
010	7.2	Gy	015	6.7	Jo	014	9.1	Hi	001	7.5	Ar	010	8.6	Jo	015	9.1	Rc
010	6.5	Pt	015	7.2	Kp	015	9.0	Jo	001	7.8	Hf	010	8.7	Pt	016	9.2	Jo
010	7.0	Cm	015	7.0	An	R Ser			001	7.4	Jo	016	8.7	Jo	Z Sco		
010	6.7	Dh	015	7.1	Cm	154615			001	8.4	Hi	022	9.0	Jo	*160021*		
010	7.0	Td	015	6.7	Pt	931	12.8	Ch	002	8.3	Rb	Z CrB			919	10.5	Ht
010	6.7	Ar	015	6.8	Dh	974	13.4	Rb	003	7.7	Es	155229			925	10.0	Bl
010	6.9	Wd	015	6.7	Ar	979	13.4	Rb	004	8.1	Hi	956	10.1	Md	926	10.3	Ht
010	7.0	Hm	016	7.0	Hm	987	13.3	Rb	006	7.7	Es	968	9.9	Be	930	10.1	Ht
010	7.1	Rb	016	6.9	Rc	002	12.8	Es	009	7.5	Es	975	10.5	Sf	931	9.9	Bl
010	6.6	Jo	018	6.8	Ba	009	12.3	Es	009	7.9	Md	976	10.5	Gy	945	9.6	Ht
010	7.0	Dl	018	7.1	Kg	009	12.8	Md	010	8.1	Hh	985	10.7	Sf	945	9.8	En
010	6.9	Kg	018	7.1	Rb	009	13.0	Rb	010	7.9	Hi	992	11.0	Cm	947	9.1	Bl
010	7.0	Rc	018	7.2	Bu	012	12.7	Es	010	7.3	Jo	004	11.5	Es	947	9.8	Fc
011	7.4	Sa	018	6.9	Hb	016	12.3	Es	010	7.6	Dh	006	11.3	Cm	951	9.7	Ht
011	6.7	Pt	018	7.0	Rc	020	11.9	Es	010	7.0	Pt	009	12.0	Gy	952	9.9	Rc
011	6.9	Dl	019	7.1	Td	V CrB			012	7.5	Es	009	11.4	Es	952	9.9	En
011	7.2	Hm	019	7.2	Wa	154639			012	7.5	Ar	020	12.3	Es	956	9.8	Fc
011	6.9	An	019	7.1	Rb	944	9.4	Wh	013	7.5	Es	T CrB			958	9.5	Ht
011	6.8	Wa	019	6.7	Pt	948	9.0	Pt	013	7.6	Rb	155526			973	9.3	Ht
011	6.8	Wp	019	7.0	Hm	955	10.3	Hi	013	7.4	Ar	962	9.8	Pt	973	9.4	Fc
011	7.0	Wu	020	7.0	Dl	956	9.7	Fc	014	7.4	Ar	974	9.9	Pt	975	9.7	En
011	7.0	Hf	020	7.0	Td	956	9.6	Md	014	8.3	Wp	RZ Sco			976	9.7	Rc
011	6.5	Jo	020	6.9	Wp	964	9.7	Md	014	7.7	Hi	*155823*			984	9.6	Rc
012	7.0	Dl	020	6.5	Pt	965	8.5	Jo	014	8.3	Wa	919	12.2	Ht	987	9.4	Rc
012	6.8	Dh	020	7.1	Hm	966	9.6	Fc	015	7.0	Ba	926	12.2	Ht	010	9.7	Jo
012	7.0	Bc	021	7.1	Rb	967	9.3	Wp	015	7.3	Jo	930	12.2	Ht	016	9.5	Jo
012	7.3	Hm	021	6.6	Jo	970	9.3	Hf	015	7.9	Cm	945	11.9	Ht	R Her		
012	7.2	Cm	021	7.1	Sx	972	8.9	Ra	015	7.5	Dh	946	11.6	En	160118		
012	7.0	Pk	022	7.1	Kg	973	9.4	Md	016	7.5	Md	948	11.4	Pt	947	9.4	Fc
012	6.9	Kg	022	6.5	Jo	973	9.1	Fc	016	7.5	Es	950	11.4	dK	948	9.1	Pt
012	6.7	Ar	023	6.5	Jo	974	7.8	Pt	017	7.5	Es	951	11.0	Ht	952	9.6	Sx
013	7.1	Rb	023	7.0	Lo	975	9.4	Hi	018	7.6	Mc	952	10.9	En	956	9.5	Md
013	6.7	Dh	023	7.0	Dl	976	9.3	Hf	020	7.4	Es	955	10.5	Rc	956	9.7	Fc
013	7.0	An	023	7.1	Hm	976	9.6	Wa	020	8.3	Wp	956	10.3	Fc	968	9.6	Be
013	6.8	Ar	024	7.0	Wa	977	8.4	Jo	021	7.4	Es	958	10.6	Ht	974	9.9	Sf

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
R HER			U SER			SX HER			RU HER			W CRB			U HER		
160118			160210			160325			160625			161138			162119		
974	10.1	Pt	021	9.5	Jo	997	8.4	Pt	988	11.3	Jo	956	9.7	Md	931	7.2	Ch
976	9.3	Hf	X SCO			999	8.4	Pt	999	10.7	Fc	956	9.7	Fc	938	7.9	Hm
977	10.0	Lr	*160221a*			001	8.3	Hf	002	10.5	Ba	964	9.2	Md	941	7.8	Hm
977	10.0	Kg	925	11.1	Bl	002	8.3	Wd	006	10.9	Hf	968	9.6	Be	942	7.8	Hm
979	10.0	Kn	931	11.5	Bl	002	8.5	Ba	009	11.1	Ks	973	9.7	Md	945	7.7	Hm
979	10.1	Gy	947	12.0	Bl	002	8.4	Pt	010	11.7	Jo	975	9.5	Sf	948	7.2	Pt
979	10.3	Jo	956	12.3	Fc	003	8.3	Pt	010	11.2	Gy	976	9.4	Hf	953	7.6	Ch
982	11.2	Jo	SX HER			005	8.7	Bu	010	11.0	Ba	977	8.8	Jo	954	8.0	Sx
982	10.9	Fc	160325			006	8.6	Lt	010	11.2	Pt	977	9.8	Pt	955	8.4	Td
984	10.3	Gy	940	8.1	Ra	009	8.0	Pt	015	11.9	Jo	979	9.6	Sq	956	7.8	Sa
985	11.7	Jo	943	8.2	OK	010	8.2	Pt	015	11.3	Cm	982	9.0	Jo	956	7.6	Hm
985	10.1	Hf	943	8.2	Lt	010	9.0	Ba	018	11.8	Ba	985	9.2	Jo	956	7.9	Kt
985	10.2	Sf	944	8.0	Pt	010	8.6	Jo	R SCO			985	9.6	Cm	956	7.6	Fc
987	10.5	Td	945	8.2	OK	011	8.2	Pt	*161122a*			986	10.0	Hf	961	8.1	Kt
990	10.5	Td	946	8.0	Pt	013	8.2	Pt	902	10.7	Bm	987	9.9	Sa	962	8.5	Kt
994	10.8	Td	947	8.0	Pt	013	8.5	Lt	908	10.7	Bm	989	9.9	Sa	962	8.1	Hv
002	11.0	Td	948	8.0	Pt	015	8.8	Cm	919	11.1	Bm	989	9.6	Sf	965	7.8	Sa
002	11.9	Wd	949	8.0	Pt	015	8.5	Jo	919	11.2	Ht	002	10.7	Sa	968	8.1	Be
002	11.4	Hf	951	8.0	Pt	015	8.1	Pt	925	11.7	Bl	003	10.6	Es	969	8.0	Sa
003	11.4	Es	952	8.1	Me	018	8.3	Mc	926	11.7	Ht	006	10.9	Hf	973	8.5	Sx
005	11.7	Es	953	8.1	Lt	018	8.2	Ba	930	11.9	Ht	009	11.0	Sa	974	8.5	Kp
006	11.6	Pg	954	8.3	Sx	019	8.4	Pt	931	12.2	Bl	009	10.8	Es	974	8.4	Hv
009	12.0	Es	954	8.0	Pt	020	8.4	Pt	943	11.8	Bm	010	10.7	Pt	974	9.0	Sf
010	11.9	Kn	956	8.0	Pt	026	8.3	Pt	945	12.4	En	010	10.8	Jo	976	8.5	Hf
010	11.0	Td	961	8.0	Pt	W SCO			950	13.2	Bm	011	11.0	Sa	976	8.2	Hm
010	12.6	Pt	961	8.0	Lt	*160519*			990	14.2	Wa	015	11.0	Jo	976	8.8	Kg
011	11.2	Td	962	8.2	Pt	925	[13.4	Bl	010	[12.4	Pt	015	10.9	Cm	977	8.6	Kp
016	12.8	Es	965	8.2	Pt	947	[12.6	Bl	S SCO			016	11.2	Md	977	8.8	Sa
016	11.6	Td	965	7.9	Be	982	[14.8	Ap	*161122b*			016	11.2	Es	977	8.5	Bc
020	11.7	Td	970	8.5	Wd	RU HER			902	11.8	Bm	017	11.2	Jo	977	8.5	Hv
021	12.9	Es	973	8.3	Sx	160625			908	11.1	Bm	020	11.2	Es	977	8.8	Kt
U SER			974	8.1	Pt	935	9.4	Ch	919	10.6	Bm	021	11.5	Jo	977	8.6	Cx
160210			975	8.1	Lt	940	9.6	Ra	919	10.3	Ht	W OPH			977	8.4	Jo
977	12.4	Hf	976	8.6	Hf	943	10.0	OK	925	10.4	Bl	*161607*			977	8.6	Lr
979	12.4	Jo	977	8.1	Pt	945	9.6	OK	926	10.1	Ht	948	[12.5	Pt	977	8.2	Hm
982	12.5	Jo	978	8.0	Pt	948	9.9	Pt	930	10.2	Ht	982	[12.7	Ap	977	9.6	Kg
982	12.6	Ap	979	8.1	Pt	953	10.0	Ch	931	10.9	Bl	010	[12.5	Pt	977	8.4	Pt
986	12.4	Hf	979	8.4	Jo	960	10.5	Sq	943	11.1	Bm	V OPH			978	8.8	Kp
990	12.9	Wp	980	8.1	Ko	965	10.2	Be	945	11.1	En	*162112*			978	8.5	Bc
990	12.8	Wa	980	8.0	Pt	966	10.4	SS	945	11.4	Ht	920	9.9	Fn	978	8.5	Hv
002	11.2	Wd	981	8.0	Pt	967	10.6	SS	947	11.6	Bl	948	8.8	Pt	978	9.0	Sc
002	11.0	Hf	982	8.6	Jo	972	10.6	SS	948	11.9	Pt	952	10.4	Sx	978	9.0	Gy
004	10.6	Bc	982	8.4	Lt	974	10.7	Sf	950	11.3	Bm	953	9.8	Ch	978	8.4	Hm
004	10.6	Hv	984	8.4	Hf	974	10.5	Pt	951	12.0	Ht	958	10.0	Wg	979	8.6	Td
010	11.2	Jo	984	7.6	Gy	976	10.5	Hf	952	11.3	En	977	9.3	Jo	979	8.8	Hi
010	10.4	Pt	985	8.5	Mc	978	10.7	Gy	958	11.4	Ht	977	9.0	Pt	979	8.5	Bc
012	10.0	Bc	985	8.5	Jo	979	10.6	Jo	973	12.2	Ht	979	10.2	Hf	979	8.5	Hv
013	9.9	Bc	985	8.5	Me	980	10.8	Ko	977	12.7	Pt	980	10.0	Kn	979	8.4	Bu
013	10.0	Hv	985	8.6	Cm	982	10.8	Jo	982	10.0	Kv	985	9.4	Jo	979	8.7	Dl
013	10.3	Dl	986	8.6	Me	985	11.0	Jo	983	9.9	Dh	987	9.9	Sz	980	8.8	Td
014	10.0	Bc	987	8.5	Wh	985	10.8	Sf	990	13.2	Wp	988	9.5	Jo	980	8.6	Hv
014	10.0	Hv	987	8.3	Wd	985	10.6	Cm	990	13.2	Wa	990	10.2	Hf	980	8.5	Hm
015	10.0	Hv	988	8.4	Lt	986	10.8	Me	001	10.0	Dh	004	9.6	Kn	980	9.1	Sa
015	10.1	Bc	988	8.4	Jo	986	10.8	Hf	008	9.9	Dh	010	9.0	Jo	981	8.6	Hv
015	10.4	Jo	988	8.2	Pt				W CRB			010	8.7	Pt	982	9.0	Kp
017	9.7	Jo	989	8.3	Pt				161138			016	8.8	Jo	982	9.0	Td
018	9.9	Bu	990	8.2	Pt				947	9.9	Fc	021	8.7	Jo	982	8.5	Bc
019	10.1	Dl	995	8.4	Pt				948	10.2	Pt				982	8.5	Hv

Variable Star Observations Received During July and August, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
U Her			U Her			Y Sco			SS Her			W Her			W Her		
162119			162119			*162319*			162807			163137			163137		
982	9.0	Cx	002	9.4	Kp	986	11.7	Gy	013	9.5	Hv	977	8.8	Pt	000	9.7	Hv
982	9.0	Dh	002	9.0	Hv	g Her			014	9.4	Hv	978	9.1	Bc	001	10.0	Dh
982	8.3	Jo	002	9.5	Td	162542			014	9.5	Bc	978	9.2	Hv	002	10.2	Ca
982	8.6	Hm	002	9.6	Dl	943	5.2	Lt	015	9.5	Bc	978	9.0	Fn	002	10.2	Dh
983	8.6	Hv	002	9.3	Hm	949	5.0	Lt	015	9.6	Jo	978	9.5	Dh	003	9.7	Bc
983	9.0	Sc	003	9.0	Hv	961	4.9	Lt	015	9.4	Hv	979	9.0	Bc	003	10.0	Lf
985	9.0	Mc	003	9.4	Kt	963	4.7	Lt	017	9.5	Jo	979	9.0	Hv	003	10.4	Kt
985	8.7	Hm	004	9.1	Bc	966	4.6	Lt	023	9.6	Jo	979	9.3	SS	004	10.4	Kt
985	9.0	Sf	004	9.6	Gy	967	4.6	Lt	T Oph			979	9.2	Sf	004	9.8	Bc
985	8.8	Dl	004	9.1	Hv	973	4.6	Lt	*162815*			980	8.9	Ko	004	10.4	Kn
985	9.1	Cm	004	9.4	Kt	978	4.9	Lt	925	9.1	Bl	980	9.1	Kn	004	9.7	Hv
985	8.6	Hv	006	9.1	Hv	988	4.8	Lt	931	9.3	Bl	980	9.0	Hv	004	10.0	Dh
986	8.8	Td	006	9.5	Dl	007	5.1	Lt	947	10.6	Bl	980	9.4	Kt	006	9.7	Hv
986	8.5	Hb	007	9.4	Kt	012	5.3	Lt	948	10.2	Pt	981	9.2	Hv	007	9.8	Hv
986	9.0	Cx	007	9.2	Hv	SS Her			956	11.2	Fc	982	9.6	Kv	007	11.1	Rl
986	9.3	Ca	008	9.6	Kp	162807			977	11.7	Pt	982	9.3	Kt	007	10.3	Kt
986	8.9	Hm	009	9.5	Sa	948	11.7	Pt	S Oph			982	8.9	Cx	008	10.7	Dh
986	8.6	Sa	009	9.2	Hv	956	10.2	Bc	*162816*			982	9.3	Dh	009	10.9	Cm
986	9.2	Kp	009	9.6	Td	956	10.2	Hv	925	12.6	Bl	982	9.2	Jo	009	10.1	Hv
986	8.6	Hv	009	9.5	Kt	956	12.1	Cl	947	11.5	Bl	983	9.2	Sc	009	11.1	Dh
987	8.4	Td	010	9.4	Kt	977	10.6	Bc	979	9.8	Bb	983	9.5	Dh	009	11.0	Kt
987	8.2	Jo	010	9.2	Pt	977	10.6	Hv	982	9.9	Ap	984	9.3	Wd	010	11.2	Kt
987	9.0	Hm	010	9.8	Hi	977	10.6	Jo	983	9.4	Fc	985	8.9	Jo	010	11.0	Cm
987	9.3	Sa	010	9.4	Td	977	11.4	Pt	W Her			985	9.3	Sf	010	11.0	Dh
987	8.6	Hv	010	9.3	Jo	978	10.4	Hv	163137			985	9.1	Cm	011	11.2	Dh
988	8.6	Bc	010	9.7	Dl	978	10.4	Bc	925	9.4	Lt	986	8.9	Cx	011	10.9	Hf
988	8.6	Hv	010	9.9	Hh	979	10.7	Bc	935	8.5	Ch	986	9.2	Hf	011	11.5	Pt
988	8.8	Be	011	9.4	Td	979	10.7	Hv	943	8.5	Lt	987	9.6	Sz	012	10.4	Bc
989	9.1	Kt	011	9.5	Dl	979	10.5	Bu	948	8.6	Lt	987	9.2	Dh	012	11.4	Wd
989	9.2	Sa	011	9.7	Hf	982	10.4	Jo	948	8.5	Pt	988	9.4	Bc	012	11.3	Dh
989	8.6	Hv	012	9.5	Dl	985	10.5	Jo	953	8.4	Ch	988	9.4	Hv	013	11.2	Dh
990	8.4	Td	012	9.6	Wd	986	10.4	Sf	955	8.5	Lt	988	9.5	Lf	013	10.4	Hv
990	9.4	Hh	013	9.4	Bc	986	10.4	Hf	956	8.4	Bc	988	9.0	Jo	013	10.4	Bc
990	8.5	Bc	013	9.5	Kp	988	10.5	Jo	956	8.4	Hv	988	9.5	Dh	013	10.4	Kt
990	9.5	Kp	013	9.4	Hv	988	9.9	Bc	956	8.8	Kt	989	9.6	Fl	014	11.4	Kt
990	8.6	Hv	013	9.5	Dl	988	9.9	Hv	956	8.4	Cl	989	9.6	Ca	014	10.4	Bc
992	9.3	Ke	013	9.5	Kt	988	9.8	Be	956	8.4	Fc	989	9.6	Bu	014	10.3	Hv
992	8.6	Bc	014	9.5	Kt	990	9.6	Bc	957	8.4	Bc	989	9.6	Wd	014	11.2	Dh
992	8.6	Hv	014	9.4	Hv	990	9.6	Hv	957	8.4	Hv	989	9.6	Kt	015	10.5	Bc
992	9.3	Kt	014	9.3	Bc	991	9.7	Sf	961	8.5	Hv	990	9.4	Bc	015	11.3	Dh
993	9.4	Dl	015	9.4	Bc	992	9.6	Bc	961	8.8	Kt	990	9.4	Hv	015	10.5	Hv
993	8.7	Hv	015	9.6	Kp	992	9.6	Hv	962	8.4	Hv	991	9.8	Sf	024	11.3	Rl
994	9.5	Td	015	9.4	Hv	996	9.5	Bc	962	8.7	Ar	992	9.5	Bc	R UMi		
994	9.1	Kt	015	9.4	Td	997	9.2	Cm	962	8.7	Kt	992	9.5	Hv	163172		
995	9.3	Ca	015	9.4	Jo	999	9.5	Hv	962	8.7	Dh	992	9.6	Dh	956	9.9	Bc
996	8.7	Hv	015	9.1	Dh	999	9.5	Bc	962	8.8	Pb	992	10.2	Kt	956	9.5	Hv
996	9.3	Kt	016	9.5	Hm	000	9.5	Bc	965	8.8	Fc	993	9.6	Dh	957	9.7	Bc
997	9.2	Sa	017	9.4	Jo	000	9.5	Hv	967	8.9	SS	994	10.2	Kt	957	9.7	Hv
998	9.4	Td	018	10.5	Mc	003	8.8	Bc	968	8.9	SS	996	9.9	Ke	965	9.9	Jo
999	8.9	Bc	019	9.3	Td	004	8.8	Bc	974	8.7	Hv	996	9.7	Bc	965	10.3	Fc
999	9.0	Hv	019	9.6	Dl	004	8.8	Hv	974	8.9	Sf	996	9.9	Dh	969	10.7	Wd
999	9.0	Pg	019	9.4	Cx	009	8.8	Bc	975	8.6	Lt	996	10.2	Kt	973	10.5	Sq
000	9.3	Ke	019	9.4	Hm	009	8.9	Cm	976	9.4	Hf	997	10.0	Cm	976	10.6	Hf
000	8.9	Bc	020	9.4	Hm	010	9.3	Jo	977	9.0	Bc	997	10.0	Dh	977	10.0	Jo
000	8.9	Hv	022	9.7	Jo	010	9.0	Pt	977	9.0	Hv	999	9.7	Bc	977	10.5	Bc
001	9.0	Hv	Y Sco			011	9.1	Hf	977	8.8	Cx	999	9.7	Hv	977	10.3	Hv
001	9.4	Hi	*162319*			012	8.9	Bc	977	9.3	Dh	999	10.0	Dh	978	10.5	Bc
002	9.5	Sa	979	11.8	Mg	013	9.5	Bc	977	9.0	Jo	000	9.7	Bc	978	10.5	Hv

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
R UMi			R Dra			RR Oph			TT Oph			RR Sco			TX Oph		
163172			163266			*164319*			164403			*165030a*			165905		
979	10.2	Bc	981	10.0	Gy	979	9.0	Hf	015	10.0	Jo	952	10.6	En	986	10.2	Hf
979	10.2	Dl	982	9.4	Kp	979	8.8	Bb	015	9.8	Rc	958	10.8	dK	987	10.2	Wa
979	10.4	Hv	982	9.6	Jo	991	9.2	Hf	015	9.7	Hi	958	10.9	Ht	989	10.5	Wa
982	10.2	Jo	983	9.5	Ra	004	9.5	Kn	016	9.6	Md	959	10.9	Sl	989	10.5	Wp
982	10.6	Fc	984	9.4	Gy	011	9.6	Jo	019	9.7	Rc	966	11.0	dK	995	10.5	Wp
985	10.3	Dl	985	9.4	Gy	TT Oph			020	10.1	Pt	972	11.4	dK	995	10.6	Wa
987	10.5	Hf	985	9.0	Jo	164403			024	10.3	Wa	973	11.5	Ht	002	10.4	Cm
987	10.2	Jo	986	9.4	Gy	950	9.8	Me	024	10.5	Wp	979	11.5	dK	002	10.4	Wa
987	10.2	Bc	986	9.4	Hf	955	10.1	Sz	030	9.8	Ba	985	11.5	dK	002	10.4	Wp
988	10.2	Bc	986	9.3	Kp	956	10.2	Me	S Her			991	11.6	dK	009	10.1	Rb
988	10.2	Hv	987	9.3	Kp	961	10.4	Rc	164715			002	11.6	dK	010	10.4	Gy
990	10.2	Bc	989	9.2	Kp	961	10.6	Fc	948	12.0	Pt	007	11.5	dK	011	10.3	Wa
990	10.2	Hv	990	8.8	Hh	964	10.7	Fc	968	10.7	Be	SS Oph			011	10.5	Hf
992	10.5	Hv	990	9.3	Mn	971	9.0	Fc	977	10.2	Hf	*165202*			011	10.2	Wp
992	10.5	Bc	990	9.2	Kp	973	9.7	Fc	977	12.1	Jo	948	9.0	Pt	012	10.0	Wd
999	10.5	Bc	991	9.1	Ra	973	9.1	Md	978	10.3	Pt	956	8.9	Fc	013	9.9	Wa
999	10.5	Hv	994	8.8	Sq	976	9.7	B	982	11.9	Jo	978	9.9	Pt	013	10.2	Rb
000	10.5	Bc	994	9.0	Gy	977	9.1	Md	985	12.0	Jo	979	11.0	Gy	013	10.1	Es
000	10.5	Hv	997	8.4	Cm	977	9.0	Hf	985	10.5	Cm	980	10.9	Hi	015	10.0	Jo
001	10.3	Jo	000	8.3	Cm	978	9.6	Kp	985	10.4	Mc	983	11.2	Gy	017	10.0	Jo
003	10.3	Bc	000	8.3	Gy	978	9.6	B	010	10.0	Jo	002	12.4	Es	017	9.9	Es
004	10.5	Bc	002	8.6	Kp	978	9.4	Rc	011	9.4	Hf	005	12.5	Hi	019	10.2	Wa
004	10.5	Hv	002	8.1	Mn	979	9.7	Kp	011	9.7	Pt	010	12.7	Rb	020	10.1	Es
006	10.2	Kn	004	8.2	Gy	980	9.7	Kp	015	9.6	Jo	011	12.4	Pt	020	10.2	Pt
009	11.1	Rb	004	8.4	Cm	980	9.6	Md	015	9.0	Cm	012	12.7	Es	021	10.2	Es
010	10.4	Jo	004	8.2	Ar	980	9.4	Hi	017	9.4	Jo	020	13.3	Es	022	10.1	Es
011	10.4	Hf	006	8.2	Kn	980	9.4	Hk	018	8.6	Mc	RV Her			030	9.9	Ba
012	10.3	Bc	007	8.1	Sq	981	9.2	Rc	022	9.0	Jo	165631			R Oph		
012	10.5	Wd	008	8.0	Kp	981	9.4	B	RS Sco			948	13.1	Pt	*170215*		
013	10.5	Bc	008	7.9	Mn	981	9.5	Fn	*164844*			964	13.7	Es	948	8.3	Pt
013	10.5	Hv	009	8.0	Gy	982	9.7	Kp	919	12.1	Ht	978	13.3	Pt	952	8.3	Rc
014	10.5	Bc	010	7.9	Hh	983	10.0	Ra	925	11.7	Bl	990	14.1	Pf	952	8.5	Sx
014	10.5	Hv	010	8.1	Cm	984	9.7	Rc	926	12.0	Ht	017	14.4	Es	953	8.2	Ch
015	10.5	Hv	010	8.0	Jo	985	10.5	Jo	930	12.0	Ht	020	14.4	Es	959	8.4	Rc
015	10.5	Bc	011	8.0	Hf	985	10.0	Rc	931	12.0	Bl	RT Sco			963	8.5	Wg
916	10.4	Jo	011	7.9	Pt	986	10.1	Hf	946	12.0	En	*165636*			965	8.8	Fc
018	10.5	Mc	012	8.0	Wd	986	10.2	Me	948	11.8	Bl	925	13.0	Bl	965	8.3	Ks
022	10.3	Jo	013	7.7	Cm	986	10.4	Kp	952	12.0	En	946	13.0	En	967	8.6	Jo
R Dra			013	8.1	Kp	987	10.6	Jo	958	12.0	Ht	TX Oph			972	8.9	Rc
163266			014	7.8	Mn	987	10.3	Wp	973	11.8	Ht	165905			973	8.8	Bu
935	12.6	Ch	015	7.8	Kp	987	10.4	Kp	RR Sco			957	10.0	Cl	973	9.2	Sx
948	11.7	Pt	015	7.8	Sq	988	10.2	Rc	*165030a*			961	10.1	Fc	976	9.4	B
949	12.2	Ra	017	7.6	Jo	989	10.6	Kp	919	9.3	Ht	964	10.1	Fc	977	8.7	Jo
952	11.9	Ra	RR Oph			990	10.9	Kp	922	9.3	dK	971	10.5	Fc	978	9.3	Gy
953	11.8	Ch	*164319*			991	10.5	Rc	925	9.5	Bl	973	10.1	Fc	978	9.2	Pt
957	11.5	Cl	902	12.8	Bm	001	9.8	Wa	926	9.2	Sl	974	10.3	Wa	978	9.1	Ch
965	10.4	Jo	908	12.1	Bm	001	9.9	Wp	926	9.4	Ht	974	10.5	Wp	979	9.5	Hf
969	11.1	Ra	919	11.8	Bm	002	9.7	Kp	930	9.5	Ht	976	10.5	Wa	980	9.2	Kn
969	11.1	Wd	943	9.7	Bm	005	9.2	Hi	931	9.5	dK	976	10.0	Gy	981	9.7	Mc
974	10.8	Ch	946	9.5	En	006	9.4	Rc	931	9.7	Bl	977	10.1	Hf	981	9.1	Bu
975	9.4	Ra	947	10.0	Fc	009	9.2	Md	937	9.8	dK	979	10.1	Rb	982	9.2	Jo
976	10.1	Hf	948	9.9	Pt	011	9.4	Wa	942	9.6	Bl	979	10.3	Wa	985	9.0	Jo
977	9.8	Jo	950	9.6	Bm	011	9.5	Hf	944	10.0	dK	980	10.1	Hk	985	9.9	Mc
977	10.0	Pt	952	9.5	En	011	9.4	Wp	945	10.4	Ht	981	9.8	Gy	989	9.3	Ar
978	10.0	Gy	956	9.2	Fc	012	9.5	Wd	946	10.4	En	981	9.9	Fn	990	10.0	Hh
979	9.9	Hf	976	9.0	Kn	013	9.8	Kp	948	10.5	Bl	983	10.4	Ra	991	9.7	Hf
980	9.7	Wa	978	8.4	Pt	014	9.7	Rc	950	10.3	dK	984	10.1	Rb	006	10.2	Pg
980	10.2	Ch	979	8.5	Jo	015	10.0	Kp	951	10.6	Ht	985	10.3	Cm	009	10.5	Kn

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
R OPH			RS HER			W PAV			RS OPH			T DRA			VX SGR		
170215			171723			*174162*			*174406*			175458a			*180222a*		
010	10.6	Hh	991	9.7	Sf	972	9.5	dK	002	10.9	Wa	009	9.7	Gy	006	9.0	Hf
010	10.0	Jo	005	9.3	Es	973	9.7	Ht	002	11.0	Wp	010	9.4	Cm	011	9.3	Wp
011	10.5	Pt	005	9.5	Hi	979	9.7	dK	002	11.4	Jo	011	9.5	Kn	011	9.5	Wa
012	10.5	Wd	009	9.1	Md	985	9.7	dK	005	11.4	Ry	013	9.4	Cm	020	9.0	Pt
014	10.8	Wd	010	8.8	Jo	991	10.1	dK	005	11.4	Hi	UY DRA			024	9.1	Wa
014	10.7	Hf	011	9.0	Hf	002	10.8	dK	008	11.6	Ry	175458b			024	9.0	Wp
017	10.4	Jo	011	8.8	Pt	007	10.9	dK	009	11.0	Gy	965	12.0	Rb	R PAV		
022	10.9	Es	015	8.4	Jo	RS OPH			009	11.7	Wd	980	11.3	Ch	*180363*		
RT HER			016	8.4	Md	*174406*			009	11.4	Pt	981	11.9	Gy	919	12.2	Ht
170627			020	8.4	Es	919	11.6	Ht	010	11.4	Kn	997	11.9	Cm	920	11.6	Ht
957	9.6	Cl	023	8.2	Jo	926	11.1	Sl	010	11.4	Jo	004	11.9	Cm	930	11.4	Ht
984	14.0	Bs	S OCT			927	11.5	Ht	011	11.4	Wa	004	12.4	Ar	931	11.1	dK
990	15.1	Pf	*172486*			947	11.2	Cm	011	11.3	Wp	011	11.5	Kn	938	10.9	dK
011	12.1	Pt	925	13.0	Bl	948	11.1	Pt	011	11.5	Hf	RY HER			944	10.6	dK
018	14.6	Pf	946	12.8	En	955	11.3	Ry	013	11.7	Ry	175519			945	10.8	Ht
RW Sco			951	13.2	Ht	955	11.3	En	013	12.0	Rb	948	9.6	Pt	947	10.4	En
170833			958	12.9	Ht	959	11.5	Sl	013	11.7	Wp	953	9.2	Ch	950	10.7	dK
925	12.8	Bl	975	12.4	Ht	961	11.6	Ry	014	11.6	Wa	959	9.8	Md	951	10.2	Ht
947	12.5	En	RU OPH			964	11.9	Wp	014	11.5	Wp	974	10.5	Md	955	10.2	En
Z OPH			172809			965	11.3	Jo	015	11.6	Hi	978	10.5	Pt	958	9.9	dK
171401			948	11.9	Pt	974	11.6	Wa	016	11.2	Jo	979	10.7	Jo	958	9.6	Ht
948	8.7	Pt	978	13.3	Pt	974	11.5	Wp	019	11.6	Wa	980	10.8	Kn	966	9.1	dK
952	8.6	Sx	984	13.8	Bs	976	11.4	Ry	021	11.3	Jo	982	11.0	Jo	972	8.5	dK
965	8.6	Ks	012	13.7	Es	976	11.0	Gy	022	10.6	Ba	982	10.8	Bs	973	8.5	Ht
967	8.5	Jo	020	13.9	Es	976	11.5	Wa	024	10.4	Wa	985	11.3	Jo	979	8.0	dK
974	9.0	Hf	RT SER			977	11.0	Jo	024	10.3	Wp	010	12.6	Rb	985	8.1	dK
975	8.5	Bu	*173411*			977	11.7	Wa	U ARA			011	12.2	Pt	991	7.9	dK
977	8.2	Jo	981	11.3	Mc	978	11.1	Pt	*174551*			020	13.7	Es	002	8.0	dK
978	8.2	Pt	018	11.2	Mc	978	11.2	Gy	919	8.9	Ht	UW DRA			007	8.0	dK
982	8.8	Hf	RU Sco			979	11.6	Hf	926	9.1	Ht	175554			T HER		
982	8.4	Jo	*173543*			979	11.5	Wp	930	9.3	Ht	943	7.6	Lt	180531		
983	8.4	Bu	925	13.1	Bl	979	11.0	Sf	945	10.4	Ht	953	7.5	Lt	940	11.6	Ra
984	8.8	Hb	949	13.1	Bl	980	11.4	Wa	947	10.7	En	955	7.4	Lt	944	11.0	Dt
985	9.0	Cm	SV Sco			980	11.7	Wu	955	11.1	En	963	7.5	Lt	948	11.0	Pt
988	8.3	Jo	*174135*			980	11.4	Wp	951	10.8	Ht	V DRA			953	10.9	Ch
001	8.8	Hf	925	12.7	Bl	980	11.1	Kn	958	11.1	Ht	175654			956	9.8	Sx
002	8.6	Jo	949	12.8	Bl	981	10.9	Gy	973	12.5	Ht	948	12.4	Pt	960	9.6	Sq
010	8.5	Jo	W PAV			982	11.2	Hi	RT OPH			978	10.8	Pt	965	9.0	Jo
011	8.9	Bu	*174162*			983	11.1	Gy	175111			980	10.7	Ch	965	8.8	SS
011	8.5	Pt	919	9.2	Ht	983	11.3	Ry	948	12.5	Pt	994	10.4	Gy	966	9.0	SS
015	8.6	Jo	924	8.7	dK	985	11.7	Rb	983	13.9	Fc	009	10.1	Gy	967	8.9	SS
023	8.4	Jo	925	9.0	Bl	985	11.3	Jo	011	12.5	Pt	009	9.8	Md	967	8.9	Wd
RS HER			926	8.7	Ht	985	10.4	Cm	T DRA			011	9.9	Kn	967	9.0	Hf
171723			930	8.6	Ht	986	10.8	Gy	175458a			011	10.0	Pt	968	9.2	SS
948	12.3	Pt	931	8.7	dK	987	11.5	Wa	965	9.3	Rb	016	9.7	Md	968	8.8	Be
956	11.8	Md	931	9.0	Bl	987	11.4	Wp	965	9.3	Hf	VX SGR			972	8.4	SS
957	11.9	Md	938	8.8	dK	989	11.4	Wa	974	9.4	Hf	*180222a*			974	8.5	Hf
964	11.6	Md	942	8.9	Bl	989	11.3	Wp	980	9.3	Rb	956	9.8	Me	977	8.0	Ba
974	10.4	Md	944	8.7	dK	990	10.6	Wp	980	9.2	Ch	961	9.5	Fc	978	8.1	Sx
974	10.5	Sf	945	8.6	Ht	990	10.8	Wa	981	9.7	Gy	964	9.6	Fc	978	7.9	Pt
978	9.6	Pt	947	8.8	En	991	11.3	Ry	982	9.4	Hf	977	9.5	Ch	979	7.8	Jo
978	10.2	Fn	949	9.1	Bl	994	10.7	Gy	983	9.7	Gy	977	9.4	Hf	979	8.1	SS
979	9.9	Sf	950	8.9	dK	995	10.8	Wp	987	9.3	Hf	980	9.3	Hk	982	7.8	Jo
980	10.2	Hi	951	8.9	Ht	995	10.7	Wa	994	9.7	Gy	982	9.3	Hi	983	7.8	Gy
982	10.0	Hf	954	8.9	En	996	10.6	Wp	994	9.4	Hf	987	9.1	Wp	984	7.7	Hf
982	10.0	Jo	958	9.0	dK	996	10.6	Wa	997	9.4	Cm	001	9.3	Wa	985	7.7	Jo
985	9.9	Jo	958	8.9	Ht	001	10.7	Wa	004	9.4	Cm	001	9.1	Wp	987	7.6	Ba
985	9.7	Sf	966	9.5	dK	001	10.6	Wp	004	8.8	Ar	005	9.6	Hi	988	7.5	Be

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
T HER			X DRA			W LYR			W LYR			T SER			RY LYR		
180531			180666			181136			181136			182306			184134		
990	8.1	Bc	021	14.2	Es	965	8.3	Jo	994	9.7	Gy	979	12.8	Pt	954[	12.5	Pt
990	8.0	Hv	NOV OPH			967	8.2	Hf	994	9.6	Pk	984	14.1	Bs	988	13.5	Be
992	8.0	Hv	180911			967	8.5	Cm	994	9.5	Hf	011	12.8	Pt	989	13.5	Ar
992	8.0	Bc	956	13.7	Ar	967	8.2	Wd	995	9.6	Wd	SV DRA			990	14.0	Pf
994	7.7	Hf	962	14.1	Ar	969	8.2	Sa	995	9.7	Cm	183149			999	13.3	Wu
995	7.5	Ba	977	14.4	Ar	969	8.3	Ra	998	10.0	Bs	964	13.9	Wp	002	13.9	Pf
996	7.8	Bc	978	14.4	Ar	970	8.5	Kp	001	10.3	Hf	974	14.0	Wp	013[	12.5	Pt
998	7.7	Bc	980	14.6	Ar	973	8.8	Sx	001	10.1	Bs	974	14.0	Wa	AY LYR		
999	7.9	Bc	983	14.5	Ar	974	8.6	Kp	002	10.1	Sa	980	14.2	Wp	184137		
999	7.9	Hv	980	14.0	Wu	974	8.4	Md	004	10.4	Ar	987	14.3	Wp	978	14.3	Pg
000	7.8	Hv	988	14.6	Ar	974	8.5	Pk	005	10.3	Pk	987	14.5	Wa	006	14.4	Pg
000	7.8	Bc	989	14.6	Ar	974	8.6	Hf	008	10.6	Bs	001	14.5	Wa	012	13.2	Pg
001	7.8	Hv	992	14.6	Ar	974	8.8	Sf	008	10.5	Pk	014	14.3	Wa	013	13.3	Pg
001	7.9	Hf	993	14.7	Ar	976	8.6	Sa	009	10.5	Sa	RZ HER			013	13.6	Br
002	7.9	Bc	996	14.8	Ar	976	8.6	Pk	009	10.7	Gy	183225			R SCT		
002	7.8	Hv	997	14.8	Ar	976	8.5	Kg	010	10.8	Jo	988	12.7	Be	*184205*		
002	8.5	Hm	998	14.8	Ar	976	8.5	Bu	010	10.5	Cm	021	11.7	Es	926	5.9	Sl
003	8.1	Bc	002	14.8	Ar	977	9.1	Kp	010	10.0	Bs	X OPH			932	5.3	Sl
004	8.0	Bc	003	14.8	Ar	978	9.0	Kp	011	10.2	Rl	183308			932	5.1	Sv
004	7.8	Hv	004	14.8	Ar	978	8.7	Md	011	10.7	Pt	952	7.9	Rc	944	5.7	Cm
006	8.0	Hv	007	14.4	Ar	978	9.0	Pk	012	11.0	Wd	952	8.5	Sx	946	5.6	Pt
007	8.1	Hv	008	14.3	Ar	979	9.0	Pk	012	10.9	Pk	954	8.7	Pt	947	5.4	Hm
009	8.3	Ba	009	14.4	Ar	979	9.1	Hf	014	10.8	Ar	959	8.3	Rc	948	5.6	Pt
009	8.2	Bc	010	14.5	Ar	979	8.6	Jo	015	11.2	Jo	967	8.6	Jo	948	5.6	Hm
009	8.3	Hv	011	14.5	Ar	979	8.9	Sf	016	11.0	Md	972	8.8	Rc	949	5.6	Ra
009	8.3	Hm	012	15.0	Ar	979	8.9	Bs	016	11.3	Bs	974	9.0	Hf	950	5.6	Me
010	8.3	Jo	013	15.1	Ar	979	9.0	Pt	019	12.0	Md	974	8.7	Kp	952	5.4	Sx
010	8.4	Hm	014	15.1	Ar	980	9.1	Sa	019	10.6	Cr	977	8.8	Kp	952	5.4	Me
010	8.7	Ht	015	14.8	Ar	980	8.9	Ch	024	11.9	Rl	977	8.6	Jo	953	5.5	Me
011	8.0	Pt	TV HER			981	9.1	Pk	RY SCT			978	8.7	Kp	953	5.1	Kd
012	8.4	Hm	181031			982	9.0	Kp	*181912*			979	8.6	Pt	953	5.7	Ch
012	8.5	Bc	968	13.4	L	982	9.2	B	976	9.7	Mc	980	8.4	Ko	954	5.9	Pt
013	8.6	Hv	968	13.4	Be	982	9.2	Pk	981	9.0	Mc	982	8.7	Kp	954	5.7	Cm
014	8.4	Hv	988	13.7	Be	982	9.1	Hf	985	9.2	Mc	982	8.5	Jo	955	5.8	Rc
015	8.5	Hv	RY OPH			982	8.8	Jo	011	9.4	Mc	984	9.0	Hf	956	5.6	Pb
015	8.7	Jo	181103			982	9.0	Bs	018	9.0	Mc	985	8.6	Jo	956	5.4	Me
016	8.3	Hm	962	13.2	Cl	983	9.2	Pk	RV SGR			986	7.8	Hb	956	5.5	Ar
018	8.8	Ba	009	10.1	Md	984	9.4	Pk	*182133*			986	8.8	Kp	956	5.2	Hv
019	8.8	Cx	010	10.2	Rb	984	9.1	Hf	925[	13.6	Bl	988	8.7	Rc	956	5.7	Pt
019	8.2	Hm	011	10.1	Kn	984	9.2	Bs	955	13.6	En	989	8.7	Kp	956	5.2	Bc
020	8.3	Hm	011	10.5	Pt	985	9.3	Jo	d SER			990	8.6	Mn	957	5.5	Ar
W DRA			012	10.1	Cm	985	9.0	Sf	182200			991	8.3	Bu	957	5.2	Bc
180565			016	10.0	Md	985	9.3	Bs	954	5.1	Lt	001	8.7	Jo	957	5.5	Dh
948	9.0	Pt	018	11.2	Mc	985	9.5	Pk	966	5.2	Lt	002	8.6	Kp	957	5.5	Pb
965	9.4	Fc	022	9.3	Es	986	9.6	Kg	SV HER			004	8.7	Jo	957	5.8	Ra
978	9.9	Pt	W LYR			986	9.3	Sa	182224			006	8.5	Rc	957	5.3	Hv
980	10.2	Ch	181136			987	9.2	Hf	954	10.3	Pt	008	8.5	Mn	958	5.8	Ra
980	10.2	Kn	941	8.2	Ra	987	9.2	Kp	976	10.4	Hf	010	8.8	Jo	959	5.7	Rc
982	10.4	Hf	943	7.9	Pk	987	9.6	Pk	979	10.2	Pt	010	9.0	Je	959	5.7	Sl
984	10.3	Bs	948	8.2	Cm	988	9.6	Pk	984	10.7	Hf	011	8.8	Hf	960	5.6	Wg
011	11.8	Kn	948	7.8	Pk	988	9.4	Be	984	10.9	Bs	011	8.6	Pt	961	5.9	Pt
011	11.5	Pt	954	7.9	Pt	989	9.8	Sa	988	11.1	Be	013	8.7	Kp	961	5.2	Hv
021	11.9	Es	957	8.0	Pk	989	9.5	Kp	011	11.9	Hf	014	8.4	Mn	961	5.2	Dh
X DRA			958	8.2	Ra	990	9.2	Kp	011	12.0	Pt	014	8.6	Rc	962	5.3	Wg
180666			963	8.5	Sx	991	9.5	Sf	012	11.6	Cm	015	8.7	Kp	962	5.8	Pb
965	11.9	Fc	964	8.0	Md	991	9.8	Kg	T SER			016	8.6	Jo	962	5.8	Pt
980	11.7	Ch	965	8.2	Sa	991	9.7	Je	182306			023	8.4	Jo	962	5.4	Hv
984	12.5	Bs	965	8.3	Hf	991	9.9	Me	954[	12.8	Pt				962	5.7	Dh

Variable Star Observations Received During July and August, 1935.

J.D. Est. Obs.	J.D. Est. Obs.	J.D. Est. Obs.	J.D. Est. Obs.	J.D. Est. Obs.	J.D. Est. Obs.
R Sct	R Sct	R Sct	R Sct	R Sct	R Sct
184205	*184205*	*184205*	*184205*	*184205*	*184205*
962 5.7 Ar	979 6.8 Mg	986 6.1 Me	995 5.7 Rb	006 5.5 Hv	013 5.5 Bc
965 5.3 Pb	979 6.5 Hf	986 6.0 Kg	995 5.8 Pt	006 5.7 Hf	013 5.6 Wa
965 6.0 Pt	979 6.7 Bb	986 5.8 Kd	995 5.5 Jo	007 5.4 Ar	013 5.5 Hv
965 5.5 Dh	979 6.3 Kg	987 5.8 Bc	995 5.6 Dl	007 5.7 Dl	013 5.5 Rb
965 5.3 Rb	979 6.5 Sh	987 6.0 Rb	995 5.5 Hm	007 5.3 Kt	013 5.6 Kp
965 5.6 Fd	979 6.1 Rc	987 5.9 Hv	995 5.8 Cm	007 5.4 Dh	013 5.5 Cm
967 5.4 Jo	979 6.3 Dl	987 6.0 Mc	996 5.5 Ar	007 5.3 Hv	013 5.8 Hf
967 5.6 Cm	980 6.8 Ch	987 5.9 Kp	996 5.9 Hv	007 6.0 An	013 5.5 Kt
970 5.7 Kg	980 6.0 Wa	987 6.3 Hf	996 5.5 Hm	008 5.2 Dh	014 5.6 Hm
970 5.9 Hm	980 6.5 Hv	987 5.9 Sa	996 6.0 Bc	008 5.1 Ar	014 5.5 Rc
970 5.7 Rb	980 5.9 Kp	987 5.7 Jo	996 5.6 Dh	008 5.8 Hm	014 5.2 Bc
972 6.5 Rc	980 6.5 Hf	987 5.6 Dh	997 5.7 Dh	008 5.0 Cr	014 5.2 Hv
974 5.9 Hv	980 6.3 Ko	987 6.0 Gy	997 5.8 Pt	008 5.9 Mn	014 5.8 Sh
974 6.1 Kp	980 6.0 Pt	987 5.3 Hm	997 5.7 Rb	008 5.4 Cm	014 5.9 Mn
974 5.8 Rb	980 5.9 Dh	987 5.9 Kg	997 5.8 Dl	008 5.4 Jo	014 5.7 Hf
974 6.6 Hf	980 6.4 Ar	987 6.1 Wh	997 5.4 Hm	009 5.7 Hm	014 5.9 Wd
974 6.1 Pt	980 6.6 Wd	988 5.6 Ar	997 5.8 Sa	009 5.2 Dh	014 5.5 Kt
974 6.3 Pb	980 6.9 Hm	988 6.1 An	998 5.3 Dh	009 5.5 Kt	014 5.5 Dh
975 6.0 Mc	981 6.2 Gy	988 6.0 Pt	998 5.4 Bc	009 5.2 Ar	014 5.5 Ar
976 6.2 Gy	981 6.5 Hv	988 5.9 Hv	999 5.4 Dh	009 5.8 Gy	015 5.2 Bc
976 6.0 Mc	981 6.4 An	988 5.8 Rc	999 6.0 Pt	009 5.5 Rb	015 5.7 Pt
976 6.7 Sx	981 6.1 Mc	988 5.6 Dh	999 5.3 Bc	009 5.2 Sa	015 5.2 Hv
976 6.7 Hf	981 5.9 Pt	988 5.8 Dl	999 5.3 Hv	009 5.7 Pt	015 5.3 Dh
976 6.1 Kg	982 6.1 Jo	988 5.9 Bc	000 5.7 Hm	009 5.6 Bc	015 5.5 Kp
976 6.7 An	982 5.9 Dh	989 5.7 Ar	000 5.8 Dh	009 5.7 Hf	015 5.8 An
976 6.0 Hm	982 6.2 Hb	989 5.9 Hv	000 5.4 Bc	009 5.7 Hv	015 5.6 Ar
977 6.0 Jo	982 6.4 An	989 6.1 Pt	000 5.6 Kg	010 5.2 Dh	015 5.4 Cm
977 6.2 Lf	982 6.3 Hv	989 5.9 Kp	000 5.4 Hv	010 5.5 Kt	015 5.3 Jo
977 6.5 Bc	982 6.1 Kp	989 6.0 Bu	001 5.2 Dh	010 5.7 Pt	016 5.2 Jo
977 6.3 Hv	982 6.3 Bc	989 5.8 Cm	001 5.4 Ar	010 5.7 Dl	016 5.4 Hm
977 6.3 Dh	982 6.1 Hm	989 5.8 Dh	001 5.6 Jo	010 5.2 Ar	017 5.0 Jo
977 6.1 Kp	982 5.7 Kd	989 5.8 Kg	001 5.5 Hv	010 5.6 Kg	017 5.7 Rc
977 6.8 Hf	983 6.0 Hv	989 6.0 Sa	002 5.9 Dl	010 5.4 Hm	018 5.8 Mc
977 6.5 Kg	983 6.0 Gb	989 6.1 An	002 5.8 Pt	010 5.2 Jo	018 5.5 Rb
977 6.1 Lr	983 6.0 Dh	990 5.9 Mn	002 5.8 Hf	010 5.6 Hf	018 5.6 Bu
977 5.9 Pt	983 6.0 Ar	990 5.9 Hf	002 5.4 Sa	010 5.8 An	018 5.6 Kg
977 6.4 Hm	983 6.0 Jo	990 5.9 Bc	002 5.6 Kp	010 5.4 Rb	018 5.5 Rc
977 5.9 Wa	983 6.1 Gy	990 5.9 Hv	002 5.5 Bc	010 5.3 Je	019 5.0 Wa
977 6.3 Pb	984 6.0 Gy	990 5.8 Kp	002 5.9 An	011 5.4 Hm	019 5.4 Hm
978 6.5 Bb	984 5.9 Rb	991 5.9 Hf	002 5.5 Hv	011 5.2 Ar	019 5.8 Dl
978 6.3 Mg	984 5.5 Dh	991 6.1 Me	002 5.8 Wd	011 5.0 Sa	019 6.0 Pt
978 6.7 Wd	984 6.0 Ar	992 5.9 Dh	002 5.9 Cm	011 5.7 Dl	020 5.7 Dl
978 6.1 Hv	985 6.3 Jo	992 6.0 An	003 5.5 Hv	011 5.6 Bu	020 5.3 Cm
978 6.3 Ar	984 5.9 Wd	992 5.8 Lf	003 5.5 Bc	011 5.4 Dh	020 5.7 Hm
978 6.1 Kp	984 6.5 Hm	992 6.0 Hv	003 5.6 Pt	011 5.6 Hf	020 5.9 Pt
978 6.1 Bc	985 5.9 Cm	992 6.0 Bc	003 5.7 Kg	011 5.7 Pt	021 5.7 Rb
978 6.2 An	985 5.9 Mc	992 5.4 Ar	003 5.5 Dh	012 5.6 Hm	022 5.0 Jo
978 6.1 Gy	985 5.9 Hm	993 5.5 Ar	004 5.6 Ar	012 5.3 Ar	022 5.0 Kg
978 6.9 Hm	985 5.8 Jo	993 5.4 Dh	004 5.7 Gy	012 5.3 Dh	023 6.2 Lo
978 6.2 Kg	985 5.8 Gy	993 6.0 Hv	004 5.5 Kt	012 5.1 Bc	023 6.0 Dl
979 6.0 Sx	985 6.2 Hv	993 5.5 Hm	004 5.5 Bc	012 5.9 Dl	023 5.3 Ba
979 6.7 Wd	985 5.8 Me	993 6.1 An	004 5.5 Jo	012 5.6 Kg	023 5.9 Hm
979 6.5 Hv	985 6.4 An	993 5.7 Rc	004 5.5 Hv	013 5.4 Dh	026 5.8 Hm
979 6.2 Jo	985 5.9 Dl	993 5.8 Dl	004 5.2 Dh	013 5.4 Ar	027 5.9 Hm
979 6.1 Kp	986 6.6 Hf	993 6.0 Bc	005 5.7 Mc	013 5.7 Hm	RW Lyr
979 5.9 Pt	986 5.9 Hv	994 5.7 Gy	005 5.9 Bu	013 5.8 Pt	184243
979 6.1 Bc	986 5.9 Gy	994 5.7 Rb	006 5.7 Rc	013 5.2 Sa	988 13.8 Be
979 6.4 An	986 6.2 Kp	995 5.8 Wd	006 5.8 Hm	013 5.7 Dl	989 14.3 Ar

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
RW LYR			NOV AQL			RX LYR			S CRA			R AQL			TY AQL		
184243			184300			185032			*185437a*			190108			*190907*		
992	14.0	Ar	001	10.9	Ar	980	12.8	Ch	949	11.5	Bl	977	11.0	Hf	997	10.7	Ar
993	14.0	Ar	002	11.0	Ar	983	11.7	Dh	951	11.6	Ht	977	11.0	Jo	998	10.7	Ar
996	14.0	Ar	003	11.0	Ar	983	12.8	Ar	952	11.9	En	978	11.1	Ch	001	10.8	Ar
997	14.3	Ar	003	10.6	Dh	984	12.8	Ar	958	12.3	Ht	980	11.3	Pt	002	10.9	Ar
998	14.0	Ar	004	11.1	Bc	987	12.6	Dh	959	12.7	Sl	985	11.1	Jo	003	10.9	Ar
000	14.2	Ar	004	11.3	Hv	987	12.8	Ar	962	12.0	En	988	11.3	Jo	004	11.0	Ar
003	14.2	Ar	004	11.5	Jo	988	12.4	Be	975	12.3	Ht	004	11.5	Jo	006	10.6	Es
004	14.2	Ar	004	10.7	Dh	988	12.6	Dh	R CRA			008	11.2	Jo	007	10.8	Ar
007	14.2	Ar	004	10.9	Ar	988	12.8	Ar	*185537a*			012	11.5	Cm	008	10.8	Ar
007	14.2	Wu	006	11.2	Pg	989	12.7	Dh	925	12.3	Bl	013	11.7	Pt	009	10.8	Es
007	14.4	Bv	007	10.8	Dh	989	12.8	Ar	926	12.8	Sl	015	11.4	Jo	009	10.9	Ar
008	14.2	Ar	007	10.7	Ar	990	13.0	Pf	929	12.6	Ht	V LYR			010	10.8	Ar
009	14.1	Ar	008	10.8	Ar	993	12.8	Dh	931	12.5	Bl	190529a			010	10.5	Hf
010	14.4	Ar	008	10.6	Dh	993	12.8	Ar	947	12.5	En	954	[12.3	Pt	012	10.8	Ar
012	14.0	Ar	009	10.8	Dh	994	12.8	Ar	951	11.8	Ht	978	[14.1	L	012	10.3	Es
013	14.1	Ar	009	10.8	Ar	996	12.8	Ar	958	11.7	Ht	984	[12.6	Gy	013	11.2	Ar
014	14.6	Ar	009	11.5	Pt	996	12.6	Dh	959	11.9	Sl	013	12.1	Pt	013	10.4	Pt
015	14.3	Ar	010	10.9	Ar	997	12.7	Dh	975	12.4	Ht	016	11.6	Md	014	11.2	Ar
NOV AQL			010	10.6	Dh	997	12.9	Ar	T CRA			RX SGR			015	10.8	Ar
184300			010	10.7	Dl	998	12.8	Ar	*185537b*			*190818*			017	10.8	Md
948	11.5	Pt	010	11.4	Jo	998	12.8	Dh	925	12.8	Bl	919	[12.7	Ht	017	10.6	Es
956	11.0	Ar	010	10.7	Gy	000	12.8	Dh	926	13.0	Sl	929	[12.7	Ht	020	10.5	Es
956	10.9	Pb	011	10.7	Dl	000	12.9	Ar	931	13.0	Bl	958	[12.7	Ht	022	10.6	Es
962	11.6	Pt	012	10.5	Dh	001	12.9	Kt	959	13.0	Sl	978	[12.1	Gy	S LYR		
962	10.8	Ar	012	10.5	Ar	001	12.9	Dh	975	[12.5	Ht	994	[12.1	Gy	190925		
962	10.8	Pb	013	10.5	Ar	001	12.9	Ar	Z LYR			009	[12.3	Gy	954	[12.0	Pt
965	10.7	Dh	013	10.4	Dh	002	13.5	Pf	185634			RW SGR			980	[13.5	Ch
965	10.9	Pb	013	10.5	Dl	002	12.8	Dh	954	10.2	Pt	*190819a*			984	[13.5	Gy
965	11.3	Jo	014	11.3	Hv	002	12.9	Ar	976	9.6	Gy	919	11.2	Ht	013	13.3	Pt
974	10.9	Pb	014	11.3	Bc	003	12.8	Dh	978	9.6	L	929	11.0	Ht	X LYR		
974	11.6	Pt	014	10.4	Dh	003	12.9	Ar	980	9.9	Pt	951	9.9	Ht	190926		
977	10.9	Dh	014	10.5	Ar	004	13.1	Ar	980	9.6	Ch	954	9.0	Pt	954	9.0	Pt
977	11.3	Jo	015	10.5	Ar	004	13.0	Dh	988	10.1	Be	958	9.6	Ht	980	8.7	Pt
977	10.8	Pb	015	10.5	Dh	007	13.2	Ar	010	11.2	Gy	975	9.5	Ht	013	8.9	Pt
978	10.5	Dh	015	11.3	Hv	008	13.3	Ar	013	10.8	Pt	977	9.4	Hf	RS LYR		
978	11.0	Gy	015	11.3	Bc	009	12.9	Dh	SU SGR			978	9.7	Gy	190933a		
980	11.0	Ar	016	11.3	Jo	009	13.3	Ar	*185722*			980	9.0	Pt	954	10.3	Pt
983	10.3	Dh	019	10.7	Dl	010	13.3	Ar	919	8.6	Ht	994	9.4	Gy	971	10.7	L
983	11.0	Ar	S SCT			010	13.0	Dh	929	8.6	Ht	009	9.4	Gy	974	10.6	Be
985	11.2	Jo	*184408*			011	13.1	Dh	951	8.7	Ht	010	9.6	Jo	976	11.1	Gy
985	11.0	Bs	963	7.2	Lt	011	13.4	Ar	958	8.9	Ht	010	9.5	Hf	976	11.4	Kn
987	10.7	Dh	NOV LYR			012	13.3	Ar	975	8.9	Ht	013	9.0	Pt	980	11.8	Pt
988	11.0	Ar	184929			012	13.2	Dh	RT LYR			TY AQL			980	11.5	Ch
989	10.8	Ar	002	[8.0	Pf	013	13.2	Pt	185737			*190907*			013	[12.7	Pt
989	10.7	Dh	RX LYR			013	13.6	Dh	978	10.0	L	954	10.1	Pt	RU LYR		
992	11.5	Bc	185032			013	13.6	Ar	980	9.2	Ch	956	10.8	Ar	190941		
992	11.5	Hv	954	13.1	Pt	014	13.9	Ar	990	10.0	Pf	962	10.8	Ar	954	[13.3	Pt
992	10.7	Ar	956	13.2	Ar	014	13.8	Dh	992	9.8	Be	974	10.5	Md	013	[12.3	Pt
993	10.8	Ar	957	12.9	Ar	015	14.0	Ar	009	10.2	Pf	977	10.7	Hf	U DRA		
993	10.7	Dh	962	12.9	Ar	015	14.1	Dh	012	10.7	Cm	980	11.2	Ar	190967		
996	10.9	Ar	966	12.6	L	S CRA			X AQL			980	10.5	Pt	949	12.1	Ra
997	11.0	Ar	966	12.6	Be	*185437a*			*185005*			982	10.6	Jo	954	12.3	Pt
997	10.6	Dh	976	12.9	Ar	919	11.5	Ht	990	7.8	Mn	987	10.7	Jo	980	13.3	Pt
998	10.7	Dh	977	12.8	Ar	925	11.5	Bl	008	7.8	Mn	988	10.6	Ar	980	13.0	Ch
998	11.0	Ar	978	12.9	Dh	926	12.3	Sl	014	7.8	Mn	989	10.8	Ar	985	13.3	Bs
999	11.5	Hv	978	12.8	Ar	929	11.8	Ht	R AQL			992	11.0	Ar	008	14.3	Bs
000	10.8	Dh	979	12.8	Pt	931	11.5	Bl	190108			993	10.6	Ar	013	13.3	Pt
000	10.9	Ar	980	12.8	Ar	947	12.5	En	954	10.5	Pt	996	10.6	Ar	017	14.3	Es

Variable Star Observations Received During July and August, 1935.

J.D. Est. Obs. J.D. Est. Obs. J.D. Est. Obs. J.D. Est. Obs. J.D. Est. Obs. J.D. Est. Obs.

W Aql

191007

954 12.0 Pt
956 12.0 Ar
962 12.4 Ar
974 12.1 Md
980 12.5 Ar
980 12.7 Pt
988 12.5 Ar
989 12.5 Ar
992 12.6 Ar
993 12.7 Ar
996 12.7 Ar
997 12.8 Ar
998 12.8 Ar
001 12.8 Ar
002 12.9 Ar
003 12.9 Ar
004 12.9 Ar
006 13.3 Es
007 12.9 Ar
008 12.9 Ar
009 12.9 Ar
009 12.9 Es
010 12.9 Ar
012 13.2 Ar
012 13.2 Es
013 13.5 Ar
014 13.5 Ar
015 13.5 Ar
017 13.3 Es
020 12.9 Es
022 13.2 Es

T Sgr

191017

961 8.7 Pt
977 9.4 Hf
980 9.4 Pt
010 11.0 Jo
010 10.5 Hf
013 10.5 Pt
013 10.8 Cm

R Sgr

191019

919 11.9 Ht
961 10.2 Pt
962 11.1 SS
964 11.0 SS
965 11.1 SS
966 11.0 SS
967 10.9 SS
968 11.1 SS
975 11.8 Ht
979 10.3 SS
979 10.1 Dl
980 10.2 Pt
981 10.0 Kn
985 10.3 Dl
989 9.5 Bu
010 8.5 Dl

R Sgr

191019

011 8.1 Kn
011 8.7 Dl
011 8.2 Bu
013 7.5 Pt
013 8.0 Dl
013 8.3 Cm
013 8.2 Cr

RY Sgr

191033

919 7.2 Ht
924 7.3 dK
925 7.3 Bl
929 7.3 Ht
931 7.4 dK
931 7.4 Bl
938 7.3 dK
942 6.5 Bl
944 7.3 dK
947 7.0 En
949 7.0 Bl
950 7.3 dK
951 7.0 Ht
952 6.7 Me
952 7.0 En
955 7.2 Ht
955 7.0 En
956 6.9 Me
958 7.1 Ht
958 7.2 dK
959 7.0 En
959 6.3 Sl
961 7.0 Pt
962 7.0 Pt
962 7.2 En
963 7.2 En
965 7.0 Pt
966 7.3 dK
972 7.2 dK
974 7.0 Pt
975 7.4 Ht
979 7.2 dK
980 6.8 Pt
981 6.6 Kn
984 7.2 Gy
985 6.7 Jo
985 6.9 Me
985 7.2 dK
987 6.8 Jo
988 7.5 Pt
989 7.0 Pt
991 7.1 dK
999 7.0 Pt
002 7.3 dK
002 7.7 Pt
003 7.7 Pt
007 7.3 dK
009 7.7 Pt
010 7.7 Kn

RY Sgr

191033

010 7.3 Jo
010 7.8 Pt
013 7.7 Pt
015 7.2 Jo
016 7.0 Jo
017 7.1 Jo
019 7.3 Pt
020 6.8 Pt
021 7.0 Jo
022 7.0 Jo
022 6.6 Ba
023 6.8 Jo

TY Sgr

191124

931[12.4 Bl
949[12.4 Bl

S Sgr

191319a

919[12.9 Ht
931[12.9 Bl
949[12.2 Bl
958[12.7 Ht
961[12.7 Pt
975 12.0 Ht
979 11.2 Dl
985 11.2 Dl
010 11.0 Dl
011 10.9 Dl
013 11.0 Dl
013 10.5 Pt

Z Sgr

191321

979 8.5 Wp
980 8.7 Wp
989 8.9 Wp
989 9.1 Wa
995 8.8 Wa
995 8.9 Wp
001 9.5 Wa
001 9.5 Wp
014 9.8 Wa
024 10.5 Wa
024 10.6 Wp

SW Sgr

191331

931 9.4 Bl
942 9.7 Bl
949 9.6 Bl

TZ Cyg

191350

956 10.7 Ar
962 11.0 Ar
962 11.1 Pb
961 10.8 Pt
977 10.9 Ar
977 10.5 Jo
979 11.0 Hf
979 11.3 Gy

TZ Cyg

191350

980 11.0 Ar
980 10.8 Pt
982 10.7 Jo
983 11.3 Gy
985 11.0 Jo
988 11.3 Ar
989 11.3 Ar
992 11.1 Ar
993 11.4 Ar
996 11.3 Ar
997 11.3 Ar
998 11.2 Ar
000 11.1 Ar
001 11.2 Ar
002 11.1 Ar
003 11.1 Ar
004 11.2 Ar
007 11.0 Ar
008 11.3 Ar
009 11.1 Ar
010 11.1 Ar
011 11.3 Hf
012 11.1 Ar
013 11.2 Ar
013 10.8 Pt
014 11.2 Ar
015 11.1 Ar
015 11.2 Ba
015 11.3 Kn
023 11.2 Ba

U Lyr

191637

940 11.0 Ra
958 10.8 Ra
961 9.7 Pt
962 10.7 Fn
965 10.2 Fd
969 10.9 Ra
971 10.5 Be
971 10.4 L
977 11.7 Jo
978 11.0 Fn
980 10.4 Pt
982 11.9 Jo
983 10.6 Ra
991 10.1 Me
991 10.9 Ra
994 11.0 Gy
998 11.0 Rb
002 11.0 Dh
004 11.3 Dh
009 10.7 Gy
013 10.5 Pt
014 11.0 Ar
015 11.0 Dh

UZ Lyr

191737

002 10.3 Dh
015 10.5 Dh

UX Dra

192576

943 6.7 Lt
955 6.7 Lt
963 6.7 Lt

AF Cyg

192745

932 6.9 Kd
939 7.0 Kd
946 6.9 Kd
947 7.5 Ra
949 7.0 Kd
952 7.1 Ra
953 7.1 Kd
964 7.2 Kd
966 7.2 Kd
972 7.5 Ra
982 7.2 Kd
983 7.4 Ra
986 7.1 Kd
991 7.4 Ra

TY Cyg

192928

961 12.7 Pt
980[13.0 Ch
990 13.9 Pf
002[13.4 Pf
013[12.7 Pt

RT Aql

193311

961 12.0 Pt
980 13.0 Pt
992 12.7 Be
013[13.1 Pt

SV Aql

193411

005 10.4 Es

R Cyg

193449

940 7.8 Ra
941 8.5 Hm
942 8.4 Hm
948 8.8 Hm
949 8.6 Hm
951 8.8 Hm
951 8.4 Ch
952 8.8 Sx
952 8.6 Ra
956 8.9 Hm
956 8.9 Bc
956 8.9 Hv
956 9.0 Kt
961 8.5 Pt
962 8.8 Hv
965 9.2 Cm
965 8.8 Jo

R Cyg

193449

965 9.2 Fd
969 8.8 Hf
969 9.0 Wd
969 9.3 Ra
970 9.1 Hm
974 9.0 Hf
975 9.6 Ra
975 9.7 Mc
976 9.3 Kg
976 9.8 Mc
976 9.3 Bu
977 9.7 Bc
977 9.5 Hv
977 9.8 Kt
977 9.4 Jo
977 9.2 Hm
978 9.6 Bc
978 9.5 Hv
978 9.6 Hm
979 9.3 Sh
979 9.5 Wd
979 9.5 Dl
980 9.1 Hm
980 9.7 Hv
980 9.8 Kt
980 9.6 Hm
981 9.9 Mc
981 9.7 Hv
981 8.7 Pt
982 9.8 Kt
982 9.5 Jo
982 9.7 Hm
983 9.9 Cr
984 9.8 Wd
984 9.8 Hm
985 9.7 Hm
985 9.8 Dl
985 9.3 Jo
987 10.0 Mc
987 9.8 Hm
987 9.9 Bc
988 9.8 Bc
988 9.8 Hv
989 9.7 Kt
990 10.0 Lr
990 9.8 Bc
990 9.9 Kg
990 9.8 Hv
991 9.9 Me
991 9.8 Ra
991 9.8 Hf
992 10.1 Kt
992 9.8 Bc
992 9.8 Hv
993 9.7 Dl
993 9.8 Bc
994 10.0 Wd
994 10.0 Kg

Variable Star Observations Received During July and August, 1935.

J.D.	Est.	Obs.
R Cyg		
193449		
994	10.1	Cm
995	9.6	Dl
995	10.2	Cm
995	10.0	Wd
996	10.0	Kt
996	9.8	Bc
997	9.7	Dl
999	10.0	Bc
999	9.9	Hv
000	9.9	Bc
000	10.0	Hv
001	10.0	Cr
001	10.1	Hm
002	10.0	Dl
002	10.2	Hm
003	10.1	Bc
003	10.1	Kt
004	10.7	Kt
004	10.0	Jo
004	10.0	Bc
004	9.9	Hv
005	10.3	Es
005	10.4	Mc
006	10.0	Hf
007	10.4	Sq
007	10.2	Dl
008	10.2	Cm
008	9.6	Pk
008	10.3	Jo
009	10.2	Dl
009	10.0	Bc
009	10.3	Pk
009	10.3	Kt
009	10.3	Hm
010	10.2	Hm
010	10.3	Kt
010	10.4	Dl
011	10.4	Mc
011	10.9	Wd
011	10.4	Dl
012	10.4	Dl
012	10.0	Bc
012	10.2	Pk
013	9.8	Pt
013	10.0	Es
013	10.1	Bc
013	10.4	Pk
013	10.1	Hv
013	10.2	Dl
014	10.1	Bc
014	10.1	Hv
015	11.0	Cm
015	10.3	Bc
015	10.6	Pk
015	10.3	Hv
015	10.7	Kn
016	10.3	Hm
016	10.0	Es

J.D.	Est.	Obs.
R Cyg		
193449		
018	10.8	Mc
019	10.6	Dl
019	10.3	Hm
020	10.3	Hm
020	10.3	Es
RV Aql		
193509		
961	10.0	Pt
971	9.7	L
977	10.2	Ar
977	10.0	Hf
978	9.6	Gy
978	10.3	Ar
980	11.0	Ar
981	9.7	Pt
988	10.0	Ar
989	10.0	Ar
992	9.3	Be
996	9.4	Ar
000	9.7	Ar
002	9.1	Ar
003	9.9	Ar
004	10.0	Ar
010	9.9	Gy.
012	10.5	Ar
013	10.4	Ar
013	10.1	Pt
014	10.3	Ar
015	10.4	Ar
TT Cyg		
193732		
943	8.4	Lt
953	8.5	Lt
961	8.4	Lt
975	8.5	Lt
007	8.6	Lt
T Pav		
193972		
919	11.7	Ht
925	10.3	Bl
926	10.4	Ht
930	10.1	Ht
931	9.6	dK
931	9.6	Bl
938	9.4	dK
942	9.4	Bl
944	9.2	dK
945	9.3	Ht
949	9.2	Bl
950	9.2	dK
951	9.5	Ht
958	9.1	Ht
958	9.1	dK
966	8.9	dK
972	9.0	dK
975	9.5	Ht
979	9.3	dK
985	9.4	dK

J.D.	Est.	Obs.
T Pav		
193972		
991	9.5	dK
002	10.0	dK
007	11.1	dK
RT Cyg		
194048		
940	12.2	Ra
951	12.0	Ch
961	12.8	Pt
965	12.6	Pc
965	12.5	Fd
974	12.3	Hf
975	12.2	Ra
976	12.2	Pk
976	12.2	Gy
976	12.0	Kg
977	12.1	Jo
977	12.1	Wa
978	12.1	Gy
978	12.2	Pk
979	12.1	Pk
979	12.2	Wd
980	12.2	Wp
980	12.1	Wa
981	[10.9	Mc
981	12.0	Pk
981	12.0	Gy
981	11.9	Pt
982	12.1	Pk
982	11.9	Gy
982	12.0	Jo
983	11.9	Pk
983	11.9	Gy
984	11.8	Pk
985	11.7	Jo
985	11.8	Pk
986	11.8	Gy
987	11.6	Hf
987	10.7	Mc
987	11.7	Pk
988	11.6	Pk
989	11.1	Ar
991	10.9	Hf
991	11.1	Me
991	11.0	Ra
993	11.1	Pk
994	10.7	Pk
994	10.3	Kg
994	10.0	Gy
994	11.0	Wd
994	9.8	Cm
998	10.1	Rb
999	10.3	Pk
004	10.2	Ar
004	9.8	Jo
005	10.1	Mc
007	9.6	Pk

J.D.	Est.	Obs.
RT Cyg		
194048		
008	9.6	Pk
008	9.6	Jo
008	10.0	Cm
009	9.6	Pk
009	9.3	Gy
011	9.4	Mc
011	9.6	Wd
012	9.5	Pk
013	9.5	Pk
013	9.2	Pt
014	9.5	Ar
015	9.0	Pk
015	9.1	Cm
015	9.3	Kn
018	9.4	Mc
TU Cyg		
194348		
951	[12.8	Ch
965	[12.8	Fd
978	[12.5	Gy
989	11.3	Ar
992	13.3	Ry
004	12.7	Ar
006	12.5	Ry
009	12.5	Ry
011	12.3	Wd
013	12.0	Ry
014	12.1	Ar
X Aql		
194604		
961	9.0	Pt
974	9.0	Hf
974	8.9	Sf
976	9.8	Mc
976	8.8	Bu
977	9.6	Jo
981	9.3	Mc
981	8.9	Pt
982	8.9	Hi
982	9.3	Jo
985	8.9	Mc
985	9.4	Jo
985	9.0	Sf
985	9.3	Bs
987	8.7	Mc
987	9.5	Hf
987	8.8	Bu
988	9.4	Jo
990	8.9	Bc
990	8.9	Hv
992	9.1	Bc
992	9.1	Hv
992	9.2	Be
993	9.0	Bc
995	9.2	Jo
996	9.3	Bc
999	9.2	Bc
999	9.1	Hv

J.D.	Est.	Obs.
X Aql		
194604		
000	9.2	Bc
000	9.2	Hv
001	9.5	Jo
003	9.3	Bc
004	9.1	Bc
004	9.1	Hv
005	9.4	Mc
007	9.2	Hv
008	9.0	Jo
008	9.3	Bs
009	9.4	Hv
010	9.4	Hi
010	9.9	Hf
012	9.7	Bc
012	9.9	Bu
013	9.2	Pt
013	9.7	Bc
013	9.7	Hv
014	9.7	Bc
014	9.9	Wd
014	9.7	Hv
014	9.9	Sh
014	10.0	Hf
015	10.0	Bc
015	10.0	Hv
015	10.0	Jo
016	10.0	Ca
018	9.9	Mc
χ Cyg		
194632		
938	8.0	Hm
939	8.8	Kd
941	8.1	Hm
942	8.2	Hm
944	9.5	Cm
945	9.0	Kd
946	9.0	Kd
947	9.0	Kd
949	8.4	Hm
951	8.6	Hm
951	9.4	Ch
952	9.4	Sx
953	10.1	Kd
956	9.1	Hm
956	9.2	Bc
956	9.1	Hv
959	9.5	Bk
961	9.3	Pt
964	10.7	Kd
965	9.2	Jo
966	11.0	Kd
975	10.3	Bu
976	9.8	Hm
976	10.8	Hf
977	10.4	Jo
977	10.0	Hm
978	10.2	Gy
978	10.0	Hm

J.D.	Est.	Obs.
χ Cyg		
194632		
978	10.6	Ch
978	10.3	Fn
980	10.1	Hm
981	10.6	Pt
981	10.7	Gy
982	11.0	Jo
982	10.2	Hm
982	11.2	Kd
983	10.7	Gy
985	11.5	Jo
986	11.1	Bs
987	11.2	Hf
990	10.8	Wa
995	11.1	Cm
995	11.4	Wd
005	11.3	Es
008	11.5	Bs
011	11.5	Wd
012	11.6	Pg
012	11.3	Cm
013	11.4	Pt
013	11.5	Rl
015	12.3	Rb
017	11.7	Es
020	12.2	Wa
021	11.9	Es
RR Sgr		
194929		
931	[13.0	Bl
RU Sgr		
195142		
919	10.1	Ht
925	8.5	Bl
929	8.1	Ht
931	8.1	Bl
931	8.2	dK
938	7.8	dK
942	7.6	Bl
944	7.7	dK
949	7.3	Bl
950	7.4	dK
951	7.2	Ht
958	7.4	dK
958	7.0	Ht
962	7.2	En
966	7.3	dK
972	7.0	dK
975	6.8	Ht
979	7.2	dK
985	7.5	dK
991	7.5	dK
002	7.9	dK
007	8.0	dK

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
RR AQL			S TEL			R TEL			RS CYG			RS CYG			RS CYG		
195202			*195855*			*200747*			200938			200938			200938		
977	10.0	Jo	931	13.0	Bl	931	10.6	Bl	970	7.4	Wd	990	7.0	Hv	010	7.4	Ar
982	10.3	Jo	951	12.9	Ht	949	11.5	Bl	974	7.2	Hv	991	7.3	Je	010	7.7	Wd
984	10.6	Gy	958	12.8	Ht	RU AQL			974	7.4	Pb	991	7.7	Hf	011	7.6	Wd
RS AOL			975	12.8	Ht	200812			974	7.7	Kg	991	7.2	Ra	011	7.4	Ar
195308			SY AQL			983	11.7	Gy	975	7.3	Fn	992	7.0	Bc	012	7.4	Ar
984	12.6	Gy	200212			013	13.9	Br	975	7.2	Bu	992	7.0	Hv	012	7.7	Hm
NOV CYG			961	12.5	Pt	W CAP			975	7.2	Ra	992	7.6	Ar	012	8.0	Cm
195553			983	12.5	Gy	*200822*			976	7.4	Ar	993	7.0	Bc	012	7.2	Bc
956	13.0	Ar	992	13.7	Bc	931	12.8	Bl	976	8.0	Hf	993	7.0	Hv	013	7.2	Bc
962	13.6	Ar	013	12.3	Pt	961	13.3	Pt	976	7.6	Rc	993	7.1	Ar	013	7.2	Hv
977	14.2	Ar	013	12.0	Br	980	14.5	Wa	977	7.0	Bk	994	7.4	Gy	013	7.8	Cz
978	14.3	Ar	S CYG			982	12.1	Hi	977	7.2	Bc	994	8.2	Cm	013	7.3	Ar
980	14.5	Ar	200357			013	11.5	Pt	977	7.2	Hv	994	7.8	Kg	014	7.4	Sh
983	14.0	Ar	961	11.8	Pt	Z AQL			977	7.4	Ar	995	7.2	Jo	014	7.6	Hf
988	13.8	Ar	965	11.3	Fd	*200906*			977	7.3	Jo	995	7.3	Fn	014	7.4	Ar
989	13.8	Ar	976	11.0	Mc	902	12.8	Bm	977	7.9	Ch	996	7.0	Bc	014	7.2	Bc
992	14.4	Ar	977	10.5	Jo	908	12.6	Bm	977	7.5	Kg	996	7.0	Hv	014	7.2	Hv
993	14.7	Ar	978	11.5	Ch	919	10.7	Bm	977	7.6	Pb	996	7.0	Ar	014	7.5	Wd
996	14.9	Ar	981	11.1	Pt	935	9.4	Bm	978	7.6	Ar	997	7.9	Hf	015	7.2	Hv
997	14.8	Ar	982	10.5	Jo	961	10.2	Pt	978	7.3	Fn	997	7.2	Bu	015	7.2	Bc
998	14.5	Ar	983	11.6	Gy	988	12.3	Pt	978	7.1	Bc	997	7.1	Ar	015	7.4	Ar
000	14.0	Ar	987	10.7	Jo	010	13.2	Hi	978	7.0	Hv	998	7.1	Bc	016	7.8	Hm
001	13.6	Ar	013	12.0	Br	013	12.7	Pt	979	7.0	Bc	999	7.1	Bc	016	7.3	Jo
002	13.8	Ar	013	12.0	Pt	R SGE			979	7.0	Hv	999	7.0	Hv	020	7.9	Hm
003	14.2	Ar	018	11.9	Pf	200916			979	7.8	Sh	000	7.1	Bc	021	7.7	Rb
004	14.2	Ar	R CAP			977	9.4	Jo	979	7.5	Wd	001	7.1	Hv	R DEL		
007	14.2	Ar	*200514*			984	9.2	Jo	980	7.1	Ar	001	7.2	Ar	201008		
008	14.2	Ar	961	12.2	Pt	002	9.2	Jo	980	7.0	Hv	001	7.1	Hv	961	12.6	Pt
009	14.3	Ar	981	12.0	Pt	011	9.4	Jo	981	7.0	Hv	001	7.8	Cm	981	11.8	Kn
010	14.4	Ar	013	12.0	Pt	RS CYG			981	7.2	Wh	001	7.4	Kg	986	11.8	Bs
012	14.3	Ar	S AQL			200938			982	7.0	Bc	001	7.3	Kt	988	11.5	Pt
013	14.4	Ar	200715a			920	7.7	Fn	982	7.0	Hv	001	7.2	Ar	008	11.1	Bs
014	14.3	Ar	958	11.0	Me	947	8.2	Cm	982	7.8	Hf	002	7.5	Wd	013	11.3	Kn
015	14.2	Ar	961	11.0	Pt	948	7.8	Fn	982	7.2	Jo	002	7.3	Rb	015	10.1	Jo
RR TEL			965	11.6	Fc	951	8.2	Ch	983	7.6	Gb	002	7.1	Hv	019	10.4	Pt
195656			977	11.4	Hf	952	8.2	Sx	983	7.1	Hb	002	7.6	Hf	SX CYG		
919	12.6	Ht	977	11.3	Jo	952	7.2	Ra	983	7.0	Hv	002	7.1	Ar	201130		
951	12.6	Ht	978	11.0	Ch	954	8.0	Cm	983	7.5	Ar	003	7.2	Bc	961	13.1	Pt
975	12.6	Ht	981	11.0	Pt	955	7.4	Rc	985	7.2	Jo	003	7.1	Hv	988	12.8	Pt
Z CYG			984	11.1	Gy	956	7.0	Bc	985	8.3	Cm	003	7.1	Ar	005	11.9	Es
195849			984	11.3	Jo	956	7.0	Hv	985	7.0	Hv	004	7.2	Bc	017	11.0	Es
940	8.2	Ra	985	10.6	Me	956	7.7	Ar	986	7.0	Hv	004	7.1	Hv	019	11.0	Pt
952	8.8	Sx	002	9.6	Jo	956	7.7	Pb	987	7.9	Hf	004	7.0	Ar	RT SGR		
961	8.0	Pt	010	9.6	Hf	958	7.0	Ra	987	7.0	Bc	006	7.1	Hv	*201139*		
965	8.5	Jo	011	9.5	Jo	959	7.6	Bk	987	7.0	Hv	007	7.2	Hv	925	12.2	Bl
969	8.7	Hf	013	9.3	Pt	961	7.0	Hv	988	7.1	Pt	007	7.4	Sq	931	11.9	Bl
974	9.5	Hf	RW AQL			961	7.2	Pt	988	7.0	Bc	007	7.0	Ar	949	10.9	Bl
977	9.3	Jo	200715b			962	7.5	Fn	988	7.0	Hv	008	7.2	Je	WX CYG		
978	9.2	Ch	961	9.3	Pt	962	7.3	Hv	988	7.4	Ar	008	7.0	Ar	201437b		
981	9.0	Pt	977	9.5	Jo	962	7.7	Ar	989	7.1	Ar	009	7.0	Ar	947	12.4	Cm
982	9.0	Jo	981	9.3	Pt	962	7.6	Pb	989	7.3	Fn	009	7.2	Gy	952	12.7	Ra
984	9.8	Hf	984	9.5	Jo	965	7.2	Jo	989	8.2	Fl	009	7.2	Bc	956	13.6	Ar
985	9.2	Jo	002	9.5	Jo	965	7.5	Pb	989	7.8	Ca	009	7.2	Wd	957	13.6	Ar
991	10.2	Hf	011	9.4	Jo	967	8.0	Cm	989	7.9	Wd	009	7.2	Hv	958	12.4	Ra
013	11.2	Pt	013	9.3	Pt	968	7.7	Kg	989	7.6	Kg	010	7.4	Jo	962	13.4	Ar
S TEL			R TEL			969	7.9	Hf	989	7.0	Hv	010	7.8	Cm	974	13.2	Kg
195855			*200747*			969	7.7	Kg	990	8.1	Lr	010	7.8	Hm	976	13.8	Ar
929	12.9	Ht	925	10.4	Bl	969	7.2	Ra	990	7.0	Bc	010	7.5	Kg	977	13.5	Kg

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
WX CYG			V SGE			V SGE			U CYG			U MIC			RU VUL		
201437b			201520			201520			201647			*202240*			203422a		
977	12.5	Jo	953	10.5	Me	011	12.3	Wp	989	10.5	Kg	931	12.7	Bl	020	10.3	Pt
977	13.8	Ar	956	10.0	Me	011	11.4	Ar	989	10.5	Ar	RU CAP			022	10.3	Es
978	13.5	Ar	956	10.4	Ar	012	11.4	Ar	990	10.7	Lr	*202622*			023	10.2	Ba
979	12.8	Wd	958	10.1	Me	013	11.4	Ar	990	10.6	Hh	908	13.2	Bm	024	10.5	Wp
979	13.4	Rb	962	10.9	Ar	014	12.0	Ar	990	9.5	Mn	935	14.5	Bm	024	10.4	Wa
980	13.6	Ar	964	10.1	Wp	014	11.9	Wa	991	10.1	Ra	Z DEL			R MIC		
982	12.3	Jo	974	10.8	Wp	014	12.0	Wp	991	10.0	Je	202817			*203429*		
983	13.6	Ar	974	11.1	Wa	015	11.5	Ar	993	11.1	Dl	961	10.5	Pt	931	8.8	Bl
984	13.4	Rb	976	10.8	Gy	024	11.7	Wa	993	10.1	Pk	986	9.6	Hi	949	10.9	Bl
985	13.4	Rb	977	10.8	Ar	024	11.9	Wp	994	10.2	Gy	988	9.1	Pt	S DEL		
985	12.4	Jo	977	10.6	Hf	U CYG			994	10.1	Pk	004	9.2	Jo	203816		
987	13.4	Rb	978	10.9	Ar	201647			995	9.9	Wd	010	9.3	Gy	961	10.1	Pt
988	13.2	Rb	978	11.0	Gy	940	10.8	Ra	995	9.7	Cm	010	9.4	Hi	965	10.3	Fd
988	13.6	Ar	979	11.3	Wp	947	11.0	Cm	997	11.2	Dl	012	8.9	Es	965	10.5	Fc
989	13.5	Ar	979	11.8	Rb	952	10.4	Ra	998	10.1	Rb	015	9.0	Jo	979	11.5	Jo
991	12.8	Ra	980	11.0	Ar	956	10.5	Bc	002	10.0	Rb	019	9.2	Pt	982	11.4	Jo
992	13.4	Ar	982	11.2	Wp	956	10.5	Hv	002	11.0	Dl	ST CYG			988	11.7	Jo
993	13.3	Ar	982	10.9	Gy	961	9.8	Pt	004	9.9	Jo	202954			988	11.5	Pt
996	13.3	Ar	983	10.8	Ar	965	9.6	Fd	004	9.2	Hv	961	[13.7	Pt	010	11.4	Jo
997	13.3	Ar	983	10.2	Gy	965	9.7	Jo	005	9.5	Mc	983	[12.9	Gy	010	11.6	Hf
998	13.2	Ar	984	11.2	Gy	969	10.9	Hf	005	10.0	Pk	006	13.9	Es	016	11.7	Jo
000	13.1	Ar	985	11.4	Gy	969	9.9	Wd	006	9.6	Es	012	13.7	Es	019	11.5	Pt
001	13.3	Ar	985	10.5	Jo	969	10.5	Kg	006	10.6	Hf	021	13.9	Es	V CYG		
001	13.3	Kt	985	11.4	Me	969	10.6	Ra	007	10.0	Pk	V VUL			203847		
001	13.2	Kg	986	11.3	Me	974	10.7	Kg	007	9.0	Hv	203226			961	9.6	Pt
001	13.2	Cm	986	11.5	Gy	975	10.9	Ra	007	9.2	Sq	961	8.6	Pt	965	9.8	Fd
002	13.2	Ar	987	10.4	Jo	975	10.0	Mc	008	10.0	Je	988	8.7	Pt	974	10.2	Kg
003	13.3	Ar	987	11.3	Wp	976	9.8	Mc	008	10.3	Mn	019	9.5	Pt	975	10.4	Ch
004	13.0	Ar	988	10.9	Ar	976	10.9	Hf	008	10.4	Pk	RU VUL			976	10.6	Hf
004	12.4	Es	989	11.4	Wp	977	9.8	Bc	009	9.5	Es	203422a			977	10.4	Jo
004	12.5	Jo	989	11.3	Wa	977	9.8	Hv	009	10.3	Pk	947	9.2	Cm	982	10.7	Jo
006	12.7	Es	989	10.9	Ar	977	10.5	Jo	009	9.0	Hv	961	8.7	Fc	985	10.0	Jo
007	13.3	Ar	990	11.5	Wp	978	9.8	Bc	010	10.1	Hh	964	9.0	Fc	987	10.5	Hf
008	13.2	Ar	990	11.3	Wa	978	9.8	Hv	010	10.0	Jo	964	8.8	Wp	988	9.8	Jo
009	12.7	Es	991	10.8	Me	978	10.0	Ch	010	11.0	Dl	967	9.3	Wp	988	9.8	Pt
009	13.1	Ar	992	10.8	Ar	979	9.8	Sh	011	9.5	Mc	971	9.0	Fc	990	10.1	Mn
009	13.2	Rb	993	11.0	Ar	979	10.5	Sf	011	9.9	Wd	972	8.9	Ra	995	10.4	Jo
010	12.5	Jo	994	11.5	Gy	979	10.0	Wd	011	10.8	Dl	976	9.6	Mc	002	10.9	Mn
010	13.1	Ar	995	11.1	Wp	980	10.8	Kn	012	8.8	Es	976	9.2	Wa	004	10.4	Jo
011	12.5	Wd	995	11.2	Wa	980	10.9	Rb	012	9.6	Pk	977	9.2	Hf	008	10.0	Je
011	13.0	Ar	996	11.1	Ar	980	10.8	Hf	012	9.9	Cm	979	9.2	Wp	008	11.1	Mn
012	12.4	Es	997	11.0	Ar	980	10.1	Wd	013	9.0	Es	980	9.2	Hk	010	10.7	Jo
012	13.0	Ar	998	10.8	Ar	981	10.1	Mc	013	9.6	Pk	980	9.4	Wp	014	10.7	Hf
012	13.0	Cm	000	11.2	Ar	982	10.6	Jo	013	10.8	Dl	986	9.5	Bs	014	10.8	Wd
013	12.3	Es	001	11.2	Ar	982	9.2	Wh	014	9.0	Hv	987	9.2	Wp	014	10.8	Ar
013	13.0	Ar	001	11.4	Wa	983	9.8	Ar	014	10.0	Mn	995	9.5	Wp	016	10.5	Jo
014	12.9	Ar	001	11.3	Wp	984	10.3	Pk	015	10.5	Kn	995	9.6	Wa	019	10.8	Pt
015	13.0	Ar	002	11.2	Ar	985	9.5	Hm	015	9.6	Pk	001	9.8	Wa	Y AQR		
016	11.7	Es	003	11.3	Ar	985	11.0	Dl	015	9.9	Rb	001	9.8	Wp	*203905*		
017	10.9	Es	004	11.4	Ar	985	10.2	Pk	015	9.0	Hv	010	10.0	Gy	908	10.7	Bm
017	12.4	Md	007	11.3	Ar	985	10.5	Jo	016	8.9	Es	010	10.2	Hf	935	13.0	Bm
020	11.6	Es	008	11.3	Ar	986	10.3	Hm	017	8.8	Es	011	10.2	Wa	961	12.6	Pt
021	11.6	Es	009	11.6	Gy	987	10.0	Mc	018	9.4	Mc	011	10.1	Wp	019	[12.3	Pt
023	13.0	Kg	009	12.1	Rb	987	10.8	Hf	019	9.0	Pt	012	10.4	Cm			
V SGE			009	11.3	Ar	987	10.1	Hm	019	10.5	Dl	013	9.8	Es			
201520			010	11.3	Ar	987	10.6	Pk	020	8.7	Es	020	10.3	Es			
950	10.8	Me	010	11.7	Hf	988	10.6	Pt	020	10.2	Cz	020	10.7	Dl			
952	10.7	Me	011	12.2	Wa	988	10.6	Pk				020	10.4	Wp			

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
T DEL			W AQR			T AQR			R VUL			T CEP			T CEP		
204016			*204104*			*204405*			205923			210868			210868		
978	13.0	Dh	010	9.7	Jo	012	8.5	Cm	017	11.5	Es	960	6.6	Rc	990	8.1	Hh
979	12.0	Jo	013	10.0	Kn	013	7.8	Bc	019	11.4	Pt	961	6.1	Pt	990	8.0	Kp
980	12.8	Dh	015	9.8	Jo	013	8.5	Fd	V CAP			965	6.4	Jo	990	7.9	Mn
982	12.8	Dh	017	9.8	Jo	013	7.8	Hv	*210124*			969	7.3	Hf	990	7.5	Ra
983	12.7	Dh	U CAP			013	8.7	Dl	931	10.4	Bl	969	6.9	Wd	993	7.8	Pk
987	12.6	Dh	*204215*			013	8.4	Wm	949	9.8	Bl	969	6.5	Ra	994	7.9	Pk
988	12.6	Dh	931[	12.2	Bl	013	8.92	Hm	984	10.0	Gy	970	6.9	Kp	994	8.1	Gy
			015	10.7	Jo	014	8.8	Hm	TW CYG			970	7.4	Hm	994	8.0	Sq
988	12.7	Pt	T AQR			014	8.2	Mn	210129			973	6.8	Pk	994	8.0	Wd
989	12.7	Dh	*204405*			014	7.7	Hv	908	8.9	Bm	974	7.2	Kp	995	7.3	Ba
992	12.7	Dh	954	11.3	Cm	014	7.7	Bc	919	9.0	Bm	974	7.5	Rb	995	7.9	Rb
993	12.6	Dh	961	10.8	Pt	015	7.7	Bc	935	9.4	Bm	974	7.3	Pk	995	7.1	Jo
996	12.2	Dh	967	10.7	Cm	015	7.6	Hv	025[	13.8	Rl	974	7.5	Pb	997	7.1	Cm
997	12.3	Dh	977	10.0	Bc	015	7.8	Jo	X CAP			975	7.0	Ra	999	8.7	Hm
998	12.3	Dh	977	10.0	Hv	016	8.7	Hm	*210221*			975	6.9	Bu	999	8.0	Pk
000	12.0	Dh	978	9.8	Hv	019	8.7	Hm	931[	12.1	Bl	975	6.9	Ch	000	8.6	Gy
002	11.9	Dh	978	9.7	Bc	019	8.7	Dl	961[	13.0	Pt	976	7.3	Pk	000	8.7	Hm
003	12.0	Dh	978	9.8	Ch	019	8.0	Cm	989[	12.4	Pt	976	7.9	Rc	001	7.8	Jo
004	12.0	Dh	982	9.4	Jo	019	8.0	Pt	019[	13.0	Pt	977	7.5	Kp	002	8.2	Wd
007	11.5	Dh	985	8.9	Jo	020	8.7	Hm	RS AQR			977	6.9	Bk	002	8.2	Kp
008	11.1	Dh	985	9.1	Cm	023	8.7	Hm	*210504*			977	6.7	Jo	002	8.4	Dl
010	10.9	Dh	985	9.8	Hb	023	8.0	Jo	961	12.1	Pt	977	7.8	Pb	002	8.2	Mn
010	11.0	Hf	986	9.2	Bu	RZ CYG			984	11.9	Kn	978	7.9	Hm	002	8.1	Hf
011	10.9	Dh	988	8.7	Jo	204846			989	12.0	Pt	978	7.5	Kp	002	8.6	Hm
012	10.8	Dh	988	9.3	Pt	961	12.2	Pt	013	10.8	Kn	978	7.3	Pk	004	8.4	Gy
013	10.5	Wm	988	9.1	Bc	988	12.4	Pt	019	10.6	Pt	979	7.6	Kp	004	7.9	Cm
013	11.0	Fd	988	9.1	Hv	019	13.0	Pt	Z CAP			979	7.3	Pk	005	8.2	Pk
014	10.8	Dh	990	8.8	Hv	S IND			*210516*			979	7.8	Dl	007	8.7	Dl
015	10.7	Dh	990	8.9	Bc	204954			908	12.0	Bm	980	7.6	Kp	007	8.4	Pk
019	10.0	Pt	990	9.4	Mn	919[	13.1	Ht	935	14.7	Bm	980	8.0	Hm	008	8.4	Pk
U DEL			992	8.8	Bc	925[	13.1	Bl	989	12.2	Pt	981	7.3	Bk	008	7.7	Jo
204017			992	8.8	Hv	951[	13.5	Ht	019	10.7	Pt	981	7.0	Kn	008	8.3	Kp
950	6.9	Lt	999	8.5	Bc	975[	13.1	Ht	R EQU			981	7.5	Pk	008	8.4	Mn
954	7.1	Lt	999	8.4	Hv	X DEL			210812			982	7.9	Kp	008	8.5	Hm
960	7.0	Lt	000	8.2	Hv	205017			935	14.1	Bm	982	7.6	Pk	009	8.6	Hm
V AQR			000	8.2	Bc	961	13.1	Pt	961[	12.9	Pt	982	8.0	Hm	009	8.4	Ba
204102			001	8.2	Hv	988	11.9	Pt	989[	13.5	Pt	982	8.1	Hf	009	8.6	Gy
961	8.8	Pt	002	8.1	Hv	010	9.5	Hf	019[	13.4	Pt	983	6.9	Hb	009	8.4	Pk
964	9.0	Lt	002	8.9	Hm	019	9.3	Pt	T CEP			983	7.5	Pk	010	8.8	Hh
965	9.0	Fc	004	8.0	Bc	UX CYG			210868			984	7.5	Pk	010	8.0	Cm
982	8.8	Jo	004	8.0	Hv	205030a			938	5.6	Hm	984	7.2	Jo	010	8.8	Dl
984	9.1	Kn	004	8.0	Jo	983	10.4	Gy	941	5.8	Hm	984	8.0	Hm	010	8.6	Hm
985	8.7	Jo	006	9.0	Hm	UY CYG			942	5.4	Hm	985	7.8	Hm	011	8.8	Dl
988	9.0	Pt	007	8.0	Hv	205230			943	6.5	Pk	985	7.5	Pk	011	8.2	Jo
007	9.2	Lt	008	8.4	Mn	983	10.8	Gy	945	5.7	Hm	986	8.2	Hm	011	8.6	Hm
010	9.0	Hf	009	8.0	Hv	R VUL			947	6.4	Cm	986	7.9	Kp	012	8.8	Hm
010	8.5	Jo	009	8.3	Hf	205923			948	6.2	Pk	987	8.1	Hf	012	7.9	Ar
013	9.1	Kn	009	8.9	Hm	961	7.5	Pt	948	6.1	Hm	987	7.3	Ba	012	8.9	Kp
019	8.1	Pt	010	8.0	Je	965	8.2	Jo	949	5.8	Hm	987	8.3	Hm	012	8.5	Pk
W AQR			010	8.8	Dl	977	8.2	Jo	949	6.3	Ra	987	7.8	Kp	012	8.8	Dl
204104			010	7.8	Jo	982	8.2	Jo	951	5.8	Hm	987	7.4	Jo	013	8.9	Dl
908	14.0	Bm	010	8.8	Cm	985	8.1	Jo	952	6.7	Sx	987	7.7	Pk	013	8.5	Pk
935	13.1	Bm	010	8.9	Hm	988	8.1	Pt	955	6.7	Rc	988	8.2	Hm	013	8.8	Kp
984	11.3	Kn	011	8.8	Dl	995	9.6	Jo	955	5.9	Hm	988	7.6	Pk	013	7.9	Ar
985	11.0	Jo	011	8.6	Hm	001	10.0	Jo	956	6.0	Hm	989	7.0	Pt	013	8.8	Hm
987	11.0	Jo	012	8.7	Hm	004	10.4	Jo	957	6.1	Pk	989	7.9	Kp	014	8.9	Hm
006	10.0	Hi	012	7.8	Bc	008	10.6	Jo	959	6.3	Bk	989	7.3	Bu	014	8.7	Mn

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J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
T CEP			W CYG			S CEP			RV CYG			RS LAC			S LAC		
210868			213244			213678			213937			220843a			222439		
014	7.9	Ar	946	5.6	Kd	019	8.5	Pt	962	6.8	Pt	979	11.6	Wa	985	9.8	Jo
015	8.1	Sq	953	5.9	Kd	022	9.6	Ba	989	6.5	Pt	985	12.4	Jo	989	9.6	Pt
015	7.9	Ar	964	5.9	Kd	023	9.6	Jo	019	6.3	Pt	989	11.6	Wp	995	9.3	Jo
015	8.5	Kp	975	6.3	Mc	RU CYG			RR PEG			989	11.6	Wa	006	8.4	Lt
015	8.2	Kn	976	6.3	Mc	213753			214024			995	11.5	Wa	011	8.4	Lt
015	8.8	Rb	976	6.5	An	956	8.7	Bc	962	12.8	Pt	995	11.5	Wp	013	8.3	Hf
016	8.9	Hm	981	6.3	Mc	956	8.7	Hv	986[	12.7	Gy	002	11.6	Dh	015	8.1	Jo
018	8.6	Ba	982	6.8	An	960	9.2	Ry	019[	13.0	Pt	003	11.4	Dh	019	8.1	Pt
018	9.2	Mc	982	5.9	Kd	961	8.6	Pt	μ CEP			009	11.3	Dh	ST CEP		
019	8.8	Hm	985	6.3	Mc	965	8.9	Jo	214058			013	11.3	Dh	222656		
019	8.1	Pt	986	6.2	Kd	970	8.2	Ry	943	4.0	Lt	013	11.4	Wa	838	8.1	Lt
019	8.9	Dl	987	6.4	Mc	975	9.5	Mc	949	4.1	Lt	014	11.3	Dh	925	8.1	Lt
020	8.9	Dl	989	6.4	An	976	9.7	Mc	955	4.1	Lt	015	11.3	Dh	953	8.1	Lt
020	8.9	Hm	992	6.7	An	976	9.3	Ry	963	4.1	Lt	015	12.3	Jo	R IND		
021	8.8	Sx	005	6.4	Mc	977	9.1	Jo	R GRU			019	11.4	Wa	222867		
021	8.8	Rb	007	6.6	An	977	9.0	Hv	214247			020	11.5	Pt	924	9.7	Bl
023	8.4	Jo	011	6.5	Mc	977	9.0	Bc	931[	12.9	Bl	023	11.0	Ba	930	9.0	Bl
RR AQR			018	6.4	Mc	978	9.0	Bc	955[	12.9	Ht	RY LAC			942	8.7	Bl
210903			S CEP			978	9.0	Hv	002	9.6	dK	220843b			949	9.0	Bl
010	11.6	Ar	213678			981	9.5	Mc	007	9.0	dK	979	11.2	Wa	951	9.1	Ht
019	11.5	Pt	947	10.9	Cm	982	9.3	Ry	VV CEP			985	11.6	Jo	955	9.2	Ht
RU PEG			949	11.4	Ra	984	9.0	Jo	215363			989	11.4	Wp	W CEP		
210912			961	8.7	Pt	987	9.6	Mc	949	5.6	Lt	989	11.5	Wa	223257		
006	12.7	Pg	965	10.0	Jo	987	9.2	Jo	963	5.4	Lt	995	11.3	Wa	943	8.0	Lt
012	12.6	Pg	969	9.5	Ra	988	9.1	Bc	V PEG			995	11.5	Wp	953	7.6	Lt
Y PAV			974	10.1	Rc	988	9.1	Hv	215605			002	11.4	Dh	961	7.8	Lt
211570			975	10.2	Ra	989	8.7	Pt	962[	12.7	Pt	003	11.6	Dh	966	8.0	Lt
919	5.8	Ht	977	9.8	Jo	990	9.0	Bc	019[	12.7	Pt	009	11.1	Dh	975	7.7	Lt
929	5.5	Ht	980	10.3	Wa	990	9.0	Hv	U AQR			013	11.8	Dh	007	7.7	Lt
951	5.6	Ht	981	10.0	Kn	990	9.4	Ry	215717			013	11.3	Hf	T TUC		
958	5.6	Ht	981	9.2	Mc	992	9.0	Bc	962	12.2	Pt	013	11.3	Wa	223462		
975	6.0	Ht	982	10.3	Hf	992	9.1	Hv	989	12.1	Pt	014	11.8	Dh	951	9.2	Ht
X PEG			984	9.8	Jo	994	9.5	Gy	019	12.0	Pt	015	11.5	Dh	955	9.3	Ht
211614			986	10.7	Hi	995	9.2	Jo	TW PEG			015	12.5	Jo	958	9.5	dK
961	9.6	Pt	987	10.1	Hf	999	9.1	Bc	215927			019	11.4	Wa	966	9.4	dK
984	9.6	Kn	987	10.3	Ba	999	9.2	Hv	957	8.2	Lt	020	11.6	Pt	972	9.8	dK
986	9.9	Gy	987	9.7	Jo	000	9.2	Hv	964	8.3	Lt	023	11.4	Ba	979	10.8	dK
989	9.6	Pt	989	8.9	Pt	000	9.2	Bc	007	8.2	Lt	X AQR			985	11.1	dK
013	11.0	Kn	990	10.0	Ra	000	9.5	Gy	RT PEG			221321			991	11.2	dK
019	11.0	Pt	994	10.0	Gy	001	9.0	Jo	215934			935	13.6	Bm	002[	11.1	dK
S MIC			995	9.7	Jo	004	9.4	Bc	013	10.7	Hf	S GRU			R LAC		
212030			000	10.9	Gy	004	9.4	Hv	T PEG			221948			223841		
931	8.0	Bl	002	9.6	Jo	004	9.4	Jo	220412			931[	12.8	Bl	982	12.0	Jo
949	8.7	Bl	004	10.3	Gy	006	9.8	Ry	984	10.5	Kn	955[	12.8	Ht	985	11.7	Jo
958	9.3	dK	006	10.4	Hi	008	9.7	Jo	984	10.6	Gy	RW CEP			013	9.9	Hf
966	9.6	dK	008	10.0	Ba	009	9.9	Ry	006	11.8	Hi	221955			015	9.6	Jo
972	10.0	dK	008	9.6	Jo	011	9.6	Mc	Y PEG			837	7.5	Lt	015	9.8	Kn
979	10.6	dK	010	10.2	Gy	013	9.5	Bc	220613			866	7.5	Lt	TV AND		
985	10.8	dK	011	9.5	Jo	013	9.5	Hv	919	10.4	Bm	925	7.4	Lt	225342		
991	11.4	dK	012	10.3	Ar	014	9.3	Bc	935	11.4	Bm	953	7.4	Lt	947	10.0	Cm
007	11.8	dK	013	10.4	Ar	014	9.4	Hv	984[	12.6	Gy	RV PEG			964	9.6	Fc
SW CEP			013	10.3	Hf	015	9.5	Bc	RS PEG			222129			971	9.6	Fc
212362			014	10.3	Ar	015	9.9	Kn	220714			984	10.9	Gy	979	9.0	Jo
925	8.5	Lt	015	10.3	Ar	015	9.5	Hv	935	11.9	Bm	010	10.9	Hf	980	9.6	Hk
953	8.1	Lt	015	9.5	Sq	015	9.8	Jo	984	12.8	Gy	S LAC			980	9.5	Wp
W CYG			015	9.8	Kn	018	10.0	Mc	RS LAC			222439			980	9.4	Wa
213244			015	9.7	Rc	019	8.7	Pt	220843a			962	11.1	Pt	982	9.7	Jo
939	5.7	Kd	018	10.0	Mc	023	10.0	Jo	955[	11.9	Sz	979	10.0	Jo	987	9.6	Jo

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J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.	J.D.	Est.	Obs.
TV And			**VY And**			**V Cas**			**RY And**			**Z And**			**R Cas**		
225342			235745			230759			231539			232848			235350		
987	9.5	Wa	987	10.3	Jo	989	11.5	Ar	964	12.2	Fc	013	10.8	Hf	965	11.7	Cm
996	10.4	Ar	987	10.3	Wp	994	11.3	Gy	971	12.6	Fc	014	10.7	Ar	984	11.6	Gy
997	10.5	Dh	987	10.5	Kp	997	11.5	Ar	980	12.3	Wp	015	10.7	Ar	987	11.5	Cm
000	10.4	Dh	990	10.6	Kp	000	10.6	Ar	985	11.0	Jo	015	10.5	Kn	010	10.5	Dl
001	10.5	Dh	000	10.3	Dh	000	10.8	Gy	987	11.3	Wp	016	10.6	Jo	011	10.4	Dl
002	10.5	Dh	001	10.4	Wa	004	10.8	Ar	011	12.4	Wa	020	10.7	Pt	011	11.4	Wd
003	10.5	Dh	001	10.5	Wp	009	10.0	Ar	016	11.4	Jo	**ST And**			012	10.4	Dl
004	10.5	Dh	008	10.5	Kp	009	10.5	Gy	020	11.0	Pt	233335			013	10.3	Bl
009	10.5	Dh	009	10.7	Dh	010	9.7	Cm	023	11.6	Ba	962	10.7	Pt	013	11.2	Hf
009	10.6	Rb	011	10.5	Wa	010	10.7	Jo	**V Phe**			979	11.2	Jo	018	11.4	Kn
010	11.0	Gy	011	10.6	Wp	012	10.2	Ar	*232746*			985	11.0	Jo	019	10.5	Dl
010	10.6	Dh	013	10.8	Hf	013	10.3	Ar	955	9.1	Ht	989	10.9	Pt	020	10.4	Dl
013	10.5	Dh	013	10.7	Dh	014	10.2	Ar	**Z And**			004	11.7	Jo	020	11.3	Cm
013	10.5	Dl	014	11.1	Dh	015	10.2	Ar	232848			008	11.0	Pt	024	11.4	Wd
013	10.6	Hf	015	10.6	Kp	015	10.0	Kn	956	10.7	Ar	013	11.3	Hf	**Z Peg**		
014	10.5	Dh	020	10.4	Pt	015	10.0	Jo	956	10.7	Pb	013	11.0	Wm	235525		
015	10.6	Dh	020	10.7	Wp	020	9.9	Pt	957	10.6	Pb	013	10.9	Fd	962	12.7	Pt
019	10.7	Wa	023	10.9	Ba	022	9.4	Jo	962	10.4	Pt	016	10.8	Jo	979	11.5	Jo
019	10.9	Dl	**RW Peg**			**TY And**			962	10.6	Ar	020	11.0	Pt	985	11.7	Jo
020	10.9	Dl	225914			231040			962	10.5	Pb	021	10.6	Jo	989	11.9	Pt
020	10.7	Wa	935	9.5	Bm	947	9.9	Cm	965	10.7	Pb	**R Aqr**			008	9.9	Jo
020	10.5	Pt	962	10.0	Pt	971	9.8	Fc	974	10.8	Pb	*233815*			010	10.5	Jo
020	10.6	Cm	984	11.0	Kn	989	9.7	Wa	976	10.7	Ar	955	11.1	Ht	013	11.3	Hf
023	10.6	Ba	987	10.8	Sz	989	9.7	Wp	977	10.7	Ar	962	11.0	Ht	016	10.7	Jo
SZ And			989	10.7	Pt	000	9.9	Dh	977	10.9	Jo	984	10.9	Gy	020	11.1	Pt
235542			012	13.1	Dh	010	10.1	Gy	977	10.7	Pb	985	11.0	Jo	021	11.0	Jo
964	[11.7	Fc	012	12.9	Ar	013	10.3	Hf	978	10.7	Ar	989	10.2	Pt	**WZ Cas**		
971	11.3	Fc	020	12.3	Pt	013	10.5	Dh	979	11.0	Jo	009	10.6	Gy	235659		
980	12.5	Hk	**R Peg**			014	9.9	Dh	980	10.7	Ar	010	10.2	Jo	890	7.7	Lt
987	[13.0	Wa	230110			015	9.8	Rb	981	10.6	Kn	013	10.6	Hf	922	7.9	Lt
996	14.0	Ar	962	12.1	Pt	019	9.8	Wa	983	10.7	Gb	015	10.0	Jo	925	7.9	Lt
003	14.1	Dh	982	11.5	Jo	020	10.5	Cm	983	10.7	Ar	017	9.9	Jo	**W Cet**		
004	14.2	Dh	984	12.0	Kn	020	9.4	Pt	985	10.7	Jo	019	9.9	Wa	*235715*		
009	13.9	Dh	985	11.0	Jo	023	9.4	Ba	988	10.6	Ar	020	9.5	Pt	013	8.7	Hf
010	14.0	Dh	989	12.0	Pt	**W Peg**			989	10.7	Ar	023	9.9	Jo	**Y Cas**		
013	14.2	Dh	010	10.4	Dl	231425			989	10.6	Pt	**Z Cas**			235855		
014	14.1	Dh	010	9.8	Hf	979	10.5	Jo	992	10.7	Ar	233956			979	9.6	Jo
015	14.1	Dh	011	10.3	Dl	985	10.7	Jo	993	10.7	Ar	010	11.0	Gy	987	10.9	Sz
019	[13.0	Wa	012	10.1	Dl	010	11.4	Jo	996	10.7	Ar	013	10.9	Hf	010	10.2	Gy
020	[13.0	Cm	013	10.4	Dl	016	11.5	Jo	997	10.7	Ar	018	10.9	Kn	010	10.5	Jo
023	11.0	Ba	013	11.6	Kn	**S Peg**			998	10.7	Ar	019	11.2	Wa	016	10.0	Jo
VY And			019	10.5	Dl	231508			000	10.6	Ar	**RR Cas**			018	10.3	Kn
225745			020	12.0	Pt	962	10.5	Pt	001	10.6	Ar	235053			019	10.3	Wa
964	10.1	Fc	**V Cas**			983	9.8	Dh	002	10.6	Ar	010	11.9	Gy	**SV And**		
971	10.2	Fc	230759			989	9.9	Pt	003	10.7	Ar	**V Cep**			235939		
979	10.5	Kp	962	11.9	Pt	010	8.4	Jo	004	10.7	Ar	235182			962	11.9	Pt
979	10.3	Jo	972	12.2	Ra	010	8.8	Hf	007	10.7	Ar	953	6.5	Lt	979	9.6	Jo
979	10.3	Wp	979	11.7	Jo	013	8.4	Kn	008	10.7	Ar	**R Tuc**			982	8.7	Jo
980	10.7	Kp	981	12.0	Kn	016	8.3	Jo	009	10.8	Ar	*235265*			985	8.6	Jo
982	10.6	Kp	985	11.8	Jo	020	8.6	Pt	010	10.8	Ar	955	[13.5	Ht	010	9.4	Jo
983	10.4	Jo	988	11.8	Jo	021	8.4	Jo	010	10.7	Jo	985	10.9	dK	016	9.0	Jo
986	10.7	Kp	989	11.7	Pt	023	8.4	Jo	012	10.7	Ar	991	10.8	dK	018	9.4	Kn
									013	10.7	Ar	002	10.5	dK	020	9.0	Pt
												007	9.6	dK	021	9.1	Jo

RAPIDLY VARYING IRREGULAR VARIABLES.

Star	J.D.	Est.	Obs.	J.D.	Est.	Obs.
005840 RX ANDROMEDAE—						
	7952.9	12.2	Me	7994.7	12.1	Gy
	7955.5	12.2	Ry	7996.9	13.1	Ar
	7956.9	11.8	Me	7997.8	13.0	Ar
	7960.5	12.1	Ry	7998.8	13.0	Ar
	7961.5	12.2	Ry	7999.8	12.5	Pt
	7961.8	11.9	Pt	8000.8	13.0	Ar
	7962.8	11.5	Pt	8001.6	11.5	Wp
	7965.9	11.6	Pt	8002.8	10.4	Ar
	7970.5	11.5	Ry	8003.9	10.8	Ar
	7976.5	12.2	Ry	8004.8	11.5	Ar
	7976.7	11.9	Gy	8005.5	11.9	Ry
	7977.5	12.1	Ry	8006.4	12.2	Ry
	7978.5	11.7	Ry	8007.5	12.7	Ry
	7978.7	11.6	Gy	8008.5	12.9	Ry
	7979.5	11.6	Ry	8009.5	12.3	Ry
	7980.5	12.2	Ry	8009.7	12.1	Gy
	7981.7[	11.3	Gy	8009.7	12.4	Ar
	7982.5	12.8	Ry	8010.5	12.3	Ry
	7983.5	12.9	Ry	8010.7	12.3	Gy
	7984.5	13.1	Ry	8010.8	12.6	Ar
	7984.8[	12.7	Gy	8011.5	12.3	Ry
	7985.9	12.8	Me	8012.5	11.2	Ry
	7986.7[	12.5	Gy	8012.8	11.5	Ar
	7987.5	13.0	Ry	8013.5	11.2	Ry
	7988.5	13.0	Ry	8013.7	11.6	Pt
	7989.8	13.0	Ar	8013.8	11.5	Ar
	7989.9	12.6	Pt	8014.8	11.0	Ar
	7990.5	11.3	Ry	8015.8	11.5	Ar
	7991.6	11.0	Ry	8019.7	11.7	Pt
	7992.5	11.4	Ry	8026.7	13.0	Pt
	7993.9	11.6	Ar			
020356 UV PERSEI—						
	7984.8[	12.7	Gy	8009.8[	12.7	Gy
060547 SS AURIGAE—						
	7888.0[	13.5	Hr	7964.3	12.3	Fc
	7903.1[	13.0	Bm	7968.3[	12.5	Fc
	7907.1[	13.2	Bm	7969.3[	11.8	Fc
	7915.1[	14.5	Bm	7984.8[	11.5	Gy
	7917.1[	14.8	Bm	7989.9[	13.2	Ar
	7924.1[	13.2	Ch	7991.5[	11.5	Ry
	7928.1	11.2	Ch	7996.9[	13.9	Ar
	7931.1	11.7	Bm	8000.9	11.3	Ar
	7944.7[	12.6	Pt	8002.9	11.3	Ar
	7946.7[	12.6	Pt	8003.9	11.2	Ar
	7947.7[	12.6	Pt	8004.9	11.4	Ar
	7948.7[	12.6	Pt	8006.5	11.4	Ry
	7949.7[	12.5	Pt	8007.5	11.7	Ry
	7952.7[	12.0	Ra	8008.5[	11.5	Ry
	7954.7[	12.6	Pt	8009.5	12.5	Ry
	7956.7[	12.5	Ra	8009.8[	12.4	Gy
	7959.3	10.9	Fc	8010.9	13.2	Ar
	7961.3	11.1	Fc	8012.8	14.4	Ar
	7962.3	11.7	Fc	8015.9	14.1	Ar
074922 U GEMINORUM—						
	7903.1[	13.3	Bm	7926.3[	13.8	Fc
	7915.1	13.8	Bm	7927.3[	13.3	Fc
	7917.1	14.2	Bm	7928.3	14.7	Fc
	7924.1[	13.3	Ch	7930.3[	13.8	Fc
	7925.9[	12.4	Sl	7935.1[	12.3	Ch
074922 U GEMINORUM—						
	7943.1[	12.9	Bm	7948.7[	12.4	Pt
	7946.7[	12.4	Pt	7949.7[	12.3	Pt
	7947.7[	12.4	Pt	7950.3[	13.8	Ks
080362 SU URSAE MAJORIS—						
	7978.7[	11.5	Pg			
081473 Z CAMELOPARDALIS—						
	7926.3	10.8	Fc	7979.5	12.8	Ry
	7927.3	11.1	Fc	7979.6	12.3	Wp
	7928.1	11.7	Ch	7979.6	12.3	Wa
	7930.3	12.0	Fc	7979.7	12.2	Gy
	7931.3	12.3	Fc	7979.7	12.7	Jo
	7933.3	12.3	Fc	7980.6	12.7	Wp
	7937.3[	12.4	Fc	7980.7	13.0	Ar
	7938.3[	12.4	Fc	7980.7	13.0	Pt
	7944.7	12.8	Pt	7981.6	13.0	Gy
	7946.4	13.5	Ks	7982.5	13.1	Ry
	7946.7	12.9	Pt	7982.7	12.1	Rb
	7948.7	12.9	Pt	7982.7	12.5	Jo
	7949.7	12.8	Pt	7983.5	13.0	Ry
	7951.7	11.1	Pt	7983.7	12.8	Ar
	7953.7	11.0	Me	7984.5	13.2	Ry
	7954.3	11.3	Ap	7985.7	12.6	Jo
	7954.7	11.1	Pt	7986.5[	12.4	Ry
	7955.5	11.3	Ry	7986.6[	12.5	Gy
	7955.7	11.0	Md	7987.5[	12.4	Ry
	7956.6	11.7	Ar	7988.7	12.7	Pt
	7956.8	11.7	Md	7988.7	12.6	Jo
	7956.9	11.6	Me	7989.6	12.8	Ar
	7957.5	11.8	Ry	7989.9	12.5	Pt
	7957.7	11.9	Ar	7990.5	10.9	Ry
	7957.8	12.2	Md	7991.5	11.0	Ry
	7959.5	13.0	Ry	7991.7	11.0	Me
	7960.8	12.6	Md	7992.5	10.8	Ry
	7961.5	13.2	Ry	7992.7	11.5	Ar
	7961.7	12.6	Pt	7993.8	11.6	Ar
	7962.5	13.3	Ry	7994.7	11.1	Gy
	7962.8	12.8	Pt	7995.6	11.6	Wp
	7962.8	13.3	Ar	7995.6	11.5	Wa
	7964.7	12.8	Es	7996.7	12.1	Ar
	7965.8	12.2	Pt	7997.6	12.1	Wp
	7969.4	12.8	Ks	7997.6	12.0	Wa
	7970.5[	11.9	Ry	7997.8	12.3	Ar
	7974.6	10.6	Wa	7998.8	12.9	Ar
	7974.6	10.8	Wp	7999.8	12.8	Pt
	7974.7	11.8	Pt	8000.8	12.4	Ar
	7974.8	10.8	Md	8001.6	13.1	Wa
	7976.5	11.6	Ry	8001.6	13.0	Wp
	7976.6	11.7	Gy	8001.7	12.4	Kt
	7976.7	11.1	Wa	8001.7	12.4	Ar
	7976.7	11.2	Wp	8002.7	12.3	Ar
	7976.9	11.6	Ar	8002.7	12.3	Pt
	7977.5	12.0	Ry	8003.6	13.0	Ar
	7977.7	11.8	Pt	8004.6	12.7	Jo
	7977.7	12.1	Ar	8004.7	13.3	Ar
	7977.8	11.8	Md	8005.5[	12.4	Ry
	7978.5	12.2	Ry	8006.4	13.1	Ry
	7978.6	12.1	Ar	8007.6	12.9	Ar
	7978.7	11.6	Gy	8008.5	13.3	Ry
	7978.8	12.2	Md	8008.6	13.2	Ar

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

Star	J.D.	Est.	Obs.	J.D.	Est.	Obs.
081473 Z CAMELOPARDALIS—						
	8009.6	13.2	Ar	8016.8	10.3	Md
	8009.7	12.5	Pt	8017.6	10.8	Jo
	8010.6	13.0	Ar	8017.7	10.4	Md
	8010.7	12.5	Pt	8018.6	10.8	Kn
	8011.7	12.5	Pt	8019.7	11.0	Pt
	8012.6	13.5	Ar	8021.7	10.8	Jo
	8013.6	13.3	Rb	8022.6	11.5	Jo
	8013.7	12.5	Pt	8023.7	11.9	Jo
	8013.7	13.0	Ar	8024.6	11.9	Wa
	8014.6	12.8	Ar	8024.6	11.7	Wp
	8015.6	10.8	Kn	8026.7	12.5	Pt
	8015.9	11.3	Ar			
094512 X LEONIS—						
	7946.7	12.6	Pt	7954.7	12.6	Pt
	7948.1	12.3	Ch	7974.7	11.8	Pt
	7949.7	12.6	Pt	7982.3	12.3	Ks
180445 NOVA HERCULIS—						
	7814.5	2.6	Pv	7955.9	8.9	Rc
	7815.5	2.6	Pv	7956.6	8.6	Ar
	7863.0	3.6	Mg	7956.6	8.8	Hk
	7863.9	3.7	Mg	7956.7	8.8	Sx
	7874.9	3.8	Mg	7956.7	9.0	Sa
	7876.0	3.8	Mg	7956.8	8.8	Ra
	7895.0	5.8	Mg	7957.7	8.5	Ar
	7932.1	12.3	Kd	7957.7	8.6	Dh
	7939.1	11.4	Kd	7957.9	8.6	Rc
	7940.8	10.9	Ra	7958.6	8.2	Sq
	7944.0	10.5	Kd	7958.7	8.4	Ra
	7945.1	10.4	Kd	7959.0	8.6	Kd
	7946.1	10.4	Kd	7959.5	9.6	L
	7946.2	10.5	Kd	7959.6	8.1	Bb
	7946.7	10.1	Pt	7960.0	8.5	Kd
	7947.6	10.1	Mb	7960.4	8.9	L
	7947.6	9.8	Hm	7960.6	9.0	St
	7947.6	9.3	Mg	7960.9	8.5	Rc
	7947.6	9.2	Bb	7961.3	8.4	Ap
	7947.7	10.1	Pt	7961.4	8.7	Ks
	7947.7	9.8	Fn	7961.4	8.3	Fc
	7948.6	9.8	Hm	7961.5	9.0	L
	7948.7	9.8	Pt	7961.7	8.4	Pf
	7949.0	9.3	Kd	7961.9	8.4	Rc
	7949.7	9.8	Pt	7962.0	8.9	SS
	7949.8	9.6	Ra	7962.0	8.5	Kd
	7950.6	8.8	Mi	7962.4	8.4	L
	7950.7	8.9	Sx	7962.6	8.0	Bb
	7950.8	9.0	Ra	7962.6	7.9	Mb
	7951.7	9.2	Pt	7962.6	7.9	Mg
	7952.7	8.9	Ra	7962.8	8.6	Ar
	7952.7	9.0	Sx	7962.9	8.4	Rc
	7952.9	9.3	Rc	7963.7	7.5	Wg
	7953.1	9.4	Kd	7963.7	8.2	Sx
	7953.2	8.5	Ch	7963.9	8.2	Rc
	7953.7	9.1	Fn	7964.0	8.4	Kd
	7954.1	9.4	Kd	7964.0	8.1	SS
	7954.7	9.5	Pt	7964.4	8.4	L
	7954.7	9.0	Sx	7964.4	8.4	Ap
	7954.9	9.1	Rc	7964.4	8.0	Fc
	7955.0	9.1	Kd	7964.6	8.4	Wp
	7955.8	8.7	Sx	7964.7	8.0	Sx
180445 NOVA HERCULIS—						
	7964.8	8.2	Md	7971.3	7.6	Fc
	7965.1	8.2	SS	7971.3	7.7	Ks
	7965.4	8.0	Fc	7971.4	7.8	Be
	7965.4	8.2	L	7971.4	8.0	L
	7965.6	8.6	Jo	7971.5	7.6	Fc
	7965.6	8.1	Hf	7971.7	7.7	Sx
	7965.6	8.3	Rb	7971.9	7.7	Rc
	7965.6	8.8	Sa	7972.2	8.0	SS
	7965.6	8.4	St	7972.3	7.9	Fc
	7965.7	8.4	Pf	7972.4	7.7	Ks
	7965.7	8.2	Hk	7972.6	7.6	Mg
	7965.7	7.7	Ra	7972.6	7.6	Bb
	7965.8	8.6	Pt	7972.6	7.5	Mb
	7966.0	8.4	SS	7972.7	7.6	Sx
	7966.1	8.5	Kd	7972.7	7.5	Ra
	7966.4	8.0	L	7972.9	7.6	Rc
	7966.4	7.7	Ks	7973.0	7.8	Kd
	7966.4	7.8	Fc	7973.3	7.6	Ks
	7966.7	7.9	Sx	7973.3	7.5	Fc
	7967.0	8.2	Kd	7973.4	7.6	Fc
	7967.1	8.4	SS	7973.8	7.7	Sx
	7967.2	8.5	SE	7973.8	7.7	Md
	7967.4	7.9	Ks	7974.0	7.9	Kd
	7967.4	7.9	Fc	7974.1	7.5	Ch
	7967.6	8.3	Cm	7974.3	7.5	Ks
	7967.6	8.1	Hf	7974.6	7.9	Wp
	7967.6	7.8	Jo	7974.6	7.8	Rb
	7967.6	8.1	Wd	7974.6	8.0	Wa
	7967.6	8.0	Wp	7974.6	7.6	Kp
	7967.6	8.0	Sf	7974.6	7.7	Sf
	7967.8	7.8	Sx	7974.7	7.6	Sx
	7968.0	8.0	Kd	7974.7	7.8	Pt
	7968.2	8.4	SS	7974.7	7.7	Hi
	7968.4	8.1	L	7974.7	7.4	Hf
	7968.6	8.2	Pv	7974.8	7.6	Md
	7968.6	8.5	St	7974.9	7.4	Rc
	7968.7	7.6	Sx	7975.4	7.5	Ks
	7968.9	7.8	Rc	7975.7	7.5	Sx
	7969.0	8.2	SS	7975.7	7.5	Ra
	7969.0	7.9	Kd	7975.7	7.7	Hi
	7969.6	7.9	Wp	7976.4	7.5	Ks
	7969.6	8.0	Wd	7976.6	7.3	Gy
	7969.6	8.0	Wa	7976.6	7.9	Wa
	7969.6	8.1	Hf	7976.6	7.7	Wp
	7969.6	8.4	St	7976.6	7.2	Kg
	7969.6	8.4	Sa	7976.7	7.6	Sa
	7969.7	7.6	Ra	7976.7	7.4	Bb
	7969.7	7.8	Sx	7976.7	7.4	Mg
	7969.7	7.9	Hi	7976.8	7.7	Ar
	7969.7	7.9	Ar	7976.8	7.5	Hf
	7969.9	7.8	Rc	7976.9	7.9	Sx
	7970.3	7.6	Fc	7976.9	7.5	Rc
	7970.3	7.6	Ks	7977.2	7.2	Ch
	7970.6	8.5	St	7977.6	8.2	St
	7970.6	8.3	Hf	7977.6	8.1	Wa
	7970.6	8.0	Rb	7977.6	8.0	Jo
	7970.6	7.5	Wd	7977.6	7.4	Sa
	7970.7	7.6	Sx	7977.6	7.5	Kp
	7970.7	7.7	Hi	7977.6	8.6	Hm

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

Star	J.D.	Est.Obs.	J.D.	Est.Obs.	Star	J.D.	Est.Obs.	J.D.	Est.Obs.
180445	Nova Herculis—				180445	Nova Herculis—			
	7977.6	8.0 To	7980.6	7.5 Wd		7985.6	7.2 Sf	7989.6	7.2 Sf
	7977.7	7.8 Ar	7980.6	7.8 Wp		7985.6	8.0 Hm	7989.6	7.5 Ar
	7977.7	7.8 Pt	7980.7	7.7 Ar		7985.6	7.3 Wd	7989.6	7.7 Hm
	7977.7	8.0 Ba	7980.7	7.2 Hi		7985.6	8.2 Hb	7989.6	7.2 Wa
	7977.7	7.9 Sx	7980.7	7.7 Pt		7985.6	7.2 Hf	7989.6	7.5 Kp
	7977.7	7.6 Hi	7980.8	7.6 Md		7985.6	7.9 Jo	7989.6	7.0 Sa
	7977.8	7.6 Md	7980.9	7.2 Rc		7985.7	7.6 Ba	7989.7	6.7 Fn
	7977.8	7.4 Hf	7981.4	7.8 Ks		7985.7	7.1 Mg	7989.7	7.0 Hi
	7977.9	7.4 Rc	7981.4	7.7 Fc		7985.7	7.3 Bb	7990.4	7.3 Ks
	7978.1	7.6 Ch	7981.6	6.8 Gy		7985.7	7.4 Gy	7990.6	7.6 Pf
	7978.4	7.9 Ap	7981.7	7.9 Pt		7985.7	7.6 Bp	7990.6	7.4 Wp
	7978.4	7.6 Ks	7981.7	7.1 Fn		7985.8	7.6 Cm	7990.6	7.0 Hf
	7978.4	7.3 L	7981.8	7.7 Hi		7985.9	7.3 Rc	7990.6	7.3 Wa
	7978.6	7.4 Wd	7981.9	7.2 Rc		7986.1	6.9 Kd	7990.7	7.8 Pt
	7978.6	7.4 Hb	7982.0	7.1 Kd		7986.3	7.7 Ap	7990.7	7.3 Kp
	7978.6	7.3 Sa	7982.3	7.2 Fc		7986.3	7.7 Ks	7990.8	7.2 Hi
	7978.6	7.7 Ar	7982.3	7.8 Ks		7986.6	8.2 Hb	7990.8	6.6 Fn
	7978.6	7.5 Kp	7982.6	7.3 Bs		7896.6	7.9 Hm	7990.9	7.0 Rc
	7978.7	7.2 Mg	7982.6	6.6 Gy		7986.6	7.2 Hf	7991.0	7.2 Kd
	7978.7	7.4 Bb	7982.6	8.1 Jo		7986.6	7.1 Bs	7991.3	6.9 Ks
	7978.7	7.2 Mb	7982.6	8.2 St		7986.6	7.0 Sa	7991.6	7.2 Kg
	7978.7	7.3 Gy	7982.6	8.0 Hb		7986.7	7.0 Hi	7991.6	7.0 Hf
	7978.7	7.7 Fn	7982.6	7.3 Hf		7986.7	6.9 Mg	7991.7	7.2 Wd
	7978.8	7.2 Sx	7982.7	7.6 Kp		7986.7	7.1 Bb	7991.7	6.8 Hi
	7978.8	7.4 Md	7982.7	7.8 Sa		7986.7	7.0 Mb	7991.7	7.4 Ra
	7978.8	8.0 Pg	7982.7	7.7 To		7986.7	8.0 Cx	7992.0	7.0 Kd
	7978.8	7.4 Hi	7982.7	7.2 Hi		7986.7	6.7 Gy	7992.3	7.5 Ks
	7978.9	7.3 Rc	7982.7	8.1 Cx		7987.0	7.2 Kd	7992.4	7.3 L
	7979.1	7.4 Ch	7982.8	7.7 Ba		7987.4	6.9 L	7992.4	7.4 Ks
	7979.2	7.9 SS	7983.3	7.5 Fc		7987.4	7.8 Ap	7992.4	7.6 Ap
	7979.4	7.4 L	7983.3	7.5 Ks		7987.4	7.6 Ks	7992.6	7.3 Ar
	7979.4	7.8 Ks	7983.6	7.3 Gy		7987.6	7.4 Kp	7992.7	7.6 Bp
	7979.5	7.5 L	7983.6	8.2 Jo		7987.6	8.0 Hm	7992.7	6.8 Hi
	7979.6	8.0 Wp	7983.6	7.0 Rb		7987.6	7.3 Wp	7992.7	7.6 Ba
	7979.6	7.5 Sf	7983.6	7.1 Mg		7987.6	7.1 Rb	7993.4	7.3 Ks
	7979.6	8.2 St	7983.6	7.2 Mb		7987.6	7.6 Pv	7993.6	7.5 Hm
	7979.6	7.5 Wd	7983.6	8.1 Hb		7987.6	7.5 Hf	7993.8	6.8 Hi
	7979.6	7.3 Hf	7983.7	7.4 Ra		7987.6	7.2 Wa	7993.8	7.7 Ar
	7979.6	7.2 Mg	7983.7	8.1 St		7987.6	7.9 Jo	7994.4	7.3 Ap
	7979.6	7.3 Bb	7983.7	7.1 Hi		7987.6	7.3 Sa	7994.4	7.5 Ks
	7979.6	7.9 To	7983.7	7.3 Ar		7987.6	7.0 Gy	7994.4	7.1 L
	7979.6	7.1 Sh	7984.3	7.7 Ks		7987.6	6.9 Kg	7994.6	7.7 Sq
	7979.6	8.2 Jo	7984.4	7.4 L		7987.7	7.4 Ar	7994.6	7.1 Rb
	7979.7	7.5 Ra	7984.6	8.0 St		7987.7	7.6 Bp	7994.6	6.7 Hf
	7979.7	7.2 Sx	7984.6	7.1 Mg		7987.7	7.6 Ba	7994.7	6.9 Gy
	7979.7	8.0 Pt	7984.6	7.5 Rb		7987.7	6.8 Hi	7994.8	6.9 Hi
	7979.7	8.0 Ba	7984.6	6.7 Gy		7987.9	7.2 Rc	7995.3	7.4 Ks
	7979.9	7.1 Rc	7984.6	7.3 Hf		7988.1	6.9 Kd	7995.6	7.0 Wa
	7980.1	7.0 Kd	7984.6	8.3 Hm		7988.4	6.8 L	7995.6	7.4 Hm
	7980.1	7.9 SS	7984.6	8.3 Jo		7988.4	7.5 Ks	7995.6	6.8 Wp
	7980.3	7.7 Fc	7984.6	7.6 To		7988.6	8.0 Hm	7995.6	7.2 Jo
	7980.3	7.7 Ks	7984.6	7.4 Wd		7988.6	7.7 Jo	7995.6	7.3 Wd
	7980.5	7.6 L	7984.6	7.2 Bs		7988.7	7.6 Ar	7995.6	7.4 Dl
	7980.6	7.9 Wa	7984.8	7.5 Md		7988.8	7.0 Hi	7995.6	7.2 Sa
	7980.6	8.2 St	7984.8	7.6 Ba		7988.9	7.0 Rc	7995.7	7.7 Pt
	7980.6	7.7 Pv	7984.9	7.4 Rc		7989.1	6.9 Kd	7995.7	7.1 Ba
	7980.6	7.6 Sa	7985.3	7.7 Ks		7989.3	7.7 Ap	7995.7	7.3 Cm
	7980.6	7.5 Hf	7985.3	7.8 Ap		7989.5	7.6 L	7995.7	6.5 Fn
	7980.6	7.5 Rb	7985.4	7.3 L		7989.6	7.3 Wp	7995.9	6.8 Hi

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

Star	J.D.	Est.	Obs.	J.D.	Est.	Obs.
180445	NOVA HERCULIS—					
	7996.3	7.7	Ap	8002.6	6.8	Sa
	7996.4	7.6	Ks	8002.6	7.4	Dl
	7996.4	7.0	L	8002.7	7.1	Ar
	7996.6	6.8	Hf	8002.7	6.4	Hi
	7996.6	6.9	Wp	8002.7	7.2	Pt
	7996.6	7.3	Hm	8002.8	7.3	Ba
	7996.6	6.7	Wa	8003.4	7.6	Ks
	7996.7	7.1	Rl	8003.6	7.3	Hb
	7996.8	7.0	Ar	8003.7	7.2	Ar
	7996.9	6.6	Hi	8003.7	7.0	Kt
	7997.3	7.4	Ks	8003.7	7.2	Pt
	7997.6	6.7	Hf	8003.8	6.5	Hi
	7997.6	6.8	Wa	8004.3	7.2	Ks
	7997.6	7.2	Hm	8004.6	6.9	Ar
	7997.6	7.0	Sa	8004.6	6.4	Hf
	7997.6	6.9	Rb	8004.7	7.3	Kt
	7997.6	6.7	Wp	8004.7	7.3	Cl
	7997.6	7.4	Hb	8004.7	6.6	Hi
	7997.7	7.8	Pf	8005.8	7.1	Ba
	7997.7	6.5	Hi	8005.8	6.6	Hi
	7997.7	7.7	Pt	8005.9	6.8	Rc
	7997.8	7.5	Cl	8006.6	6.8	Hm
	7997.8	7.2	Ar	8006.6	7.5	Sq
	7998.1	6.8	Kd	8006.6	6.9	Hf
	7998.4	7.0	L	8006.6	6.8	Rb
	7998.6	6.9	Bs	8006.7	6.6	Hi
	7998.7	7.2	Rl	8006.7	7.2	Pg
	7998.7	6.4	Hi	8006.9	6.9	Rc
	7999.4	7.5	Ks	8007.6	6.9	Ar
	7999.4	7.7	Ap	8007.7	7.1	Kt
	7999.6	6.8	Sa	8007.7	6.5	Hi
	7999.7	7.2	Hm	8007.7	6.7	Rl
	7999.8	7.3	Pg	8008.6	6.9	Ar
	8000.0	7.0	Kd	8008.6	6.4	Bs
	8000.3	7.4	Ks	8008.6	7.2	Cm
	8000.5	7.0	L	8008.6	6.7	Hm
	8000.6	7.0	Sa	8008.7	7.3	Ba
	8000.7	6.5	Hi	8008.7	6.6	Hi
	8000.7	6.4	Gy	8008.7	7.5	Rl
	8000.8	7.0	Ar	8009.6	6.6	Hm
	8001.4	7.5	Ks	8009.6	6.8	Rb
	8001.6	6.8	Hf	8009.6	7.0	Wd
	8001.6	6.9	Wp	8009.6	6.5	Sa
	8001.6	7.0	Rb	8009.7	6.9	Kt
	8001.6	7.0	Wd	8009.7	7.1	Md
	8001.6	6.7	Wa	8009.7	6.9	Ar
	8001.6	7.1	Pv	8009.7	6.5	Hi
	8001.6	7.0	Hm	8009.7	6.4	Hf
	8001.7	7.5	Pf	8009.8	7.4	Ba
	8001.7	7.2	Ar	8009.8	6.8	Dh
	8001.7	6.4	Hi	8010.6	6.7	Hm
	8001.7	6.5	Bs	8010.6	6.9	Kt
	8001.7	7.2	Kt	8010.6	6.3	Rb
	8002.4	7.7	Ks	8010.6	7.1	Wd
	8002.6	6.9	Hf	8010.6	7.2	Kg
	8002.6	6.9	Hm	8010.7	6.9	Ar
	8002.6	7.0	Wp	8010.7	7.0	Pt
	8002.6	7.0	Wd	8010.7	6.6	Hi
	8002.6	7.0	Wa	8010.7	7.0	Cm
	8010.7	7.3	Cl	8015.7	7.1	Pt
	8010.7	6.6	Hf	8015.8	6.8	Dh
	8010.7	6.4	Bs	8015.8	7.3	Cm
	8010.8	7.0	Ba	8015.9	6.7	Ar
	8010.9	6.9	Fn	8016.6	6.3	Bs
	8011.6	6.6	Hm	8016.6	6.6	Hm
	8011.6	7.5	Sq	8016.7	7.2	Ba
	8011.6	6.2	Wp	8016.7	7.0	Md
	8011.6	6.5	Wa	8016.7	7.7	Jo
	8011.6	6.4	Sa	8016.9	6.7	Rc
	8011.7	6.8	Dl	8017.7	7.1	Md
	8011.7	6.4	Hf	8017.7	7.7	Jo
	8011.7	6.5	Hi	8017.7	7.2	Ba
	8011.8	7.3	Ba	8018.6	6.3	Rb
	8011.8	7.0	Rl	8018.6	7.4	Hb
	8011.8	6.7	Dh	8018.7	7.1	Ba
	8012.6	6.8	Ar	8019.6	6.5	Hm
	8012.6	6.5	Hm	8019.6	6.5	Wd
	8012.7	7.2	Pg	8019.6	6.6	Wa
	8012.7	6.5	Hi	8019.6	6.3	Rb
	8012.8	7.0	Ba	8019.7	7.0	Pt
	8012.8	6.7	Dh	8019.7	7.2	Md
	8013.6	6.4	Wp	8019.9	7.0	Rc
	8013.6	6.5	Hm	8020.6	6.6	Wp
	8013.7	7.0	Kt	8020.6	6.5	Hm
	8013.7	7.0	Pt	8021.6	7.1	C
	8013.7	6.3	Rb	8021.6	6.4	Rb
	8013.7	7.0	Ar	8021.7	6.3	Rl
	8013.7	7.3	Cl	8021.7	7.6	Jo
	8013.7	7.0	Es	8021.7	6.8	Sx
	8013.7	6.4	Dl	8021.8	7.1	Es
	8013.7	6.5	Hi	8022.6	7.1	C
	8013.7	6.8	Rl	8022.7	7.0	Ba
	8013.7	6.7	Hf	8023.6	6.6	Hm
	8013.8	6.6	Br	8023.6	7.2	C
	8013.8	6.8	Dh	8023.7	7.0	Ba
	8014.6	6.5	Hm	8024.6	7.0	Wd
	8014.6	7.2	Sh	8024.6	6.2	Wp
	8014.6	6.4	Wp	8024.6	6.5	Wa
	8014.6	7.3	Wd	8024.7	6.4	Rl
	8014.6	6.2	Wa	8024.7	6.7	Pg
	8014.6	6.8	Hf	8025.7	6.9	Ba
	8014.7	6.7	Ar	8025.9	6.9	Rc
	8014.7	6.4	Hi	8026.6	6.9	Hm
	8014.7	7.0	Kt	8026.7	7.0	Pt
	8014.8	6.7	Dh	8026.7	6.8	Sx
	8014.9	6.8	Rc	8027.6	6.9	Hm
	8015.6	7.8	Sq	8029.6	7.0	Bp
	8015.7	7.3	Ba	8029.8	6.5	Rb
	8015.7	6.5	Kp	8030.6	6.8	C
	8015.7	6.4	Hi	8030.7	6.7	Ba
	8015.7	6.5	Rl	8030.8	7.0	Bp
	8015.7	7.5	Jo			
202946	SZ CYGNI—					
	7944.7	9.3	Pt	7951.7	9.3	Pt
	7946.7	9.7	Pt	7954.7	9.0	Pt
	7947.7	9.6	Pt	7956.9	9.0	Pt
	7948.7	9.7	Pt	7961.9	9.6	Pt
	7949.7	9.7	Pt	7962.8	9.4	Pt

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

Star	J.D.	Est.Obs.	J.D.	Est.Obs.	Star	J.D.	Est.Obs.	J.D.	Est.Obs.
202946 SZ CYGNI—					213843 SS CYGNI—				
	7965.9	9.3 Pt	7999.8	9.0 Pt		7978.7	11.8 Dh	7986.6	12.0 Hf
	7974.7	9.3 Pt	8002.7	9.3 Pt		7979.6	11.8 Wp	7986.6	11.9 Rb
	7977.7	9.4 Pt	8003.7	9.2 Pt		7979.6	11.8 Kn	7986.6	11.9 Gy
	7978.7	9.6 Pt	8009.7	9.6 Pt		7979.6	11.9 Rb	7986.7	11.8 Mg
	7979.7	9.6 Pt	8010.7	9.6 Pt		7979.6	12.0 Jo	7986.7	11.9 Bb
	7980.7	9.6 Pt	8011.7	9.7 Pt		7979.7	11.6 Gy	7986.7	11.9 Me
	7981.7	9.3 Pt	8013.7	9.7 Pt		7979.7	11.7 Pt	7987.6	12.1 Wa
	7988.7	9.0 Pt	8015.7	9.0 Pt		7979.7	12.0 Hv	7987.6	12.0 Wp
	7989.9	9.1 Pt	8019.7	9.0 Pt		7979.7	11.7 Hf	7987.6	11.9 Rb
	7990.7	9.2 Pt	8020.7	9.1 Pt		7979.7	12.0 Bc	7987.6	11.3 Sz
	7995.7	9.8 Pt	8026.7	9.7 Pt		7979.7	11.6 Pk	7987.6	12.0 Hf
	7997.7	9.4 Pt				7979.7	11.9 Mg	7987.6	12.0 Wd
213843 SS CYGNI—						7979.7	11.9 Ra	7987.7	11.9 Jo
	7929.4	8.3 Ch	7967.7	12.0 Cm		7979.7	11.5 Bb	7987.7	12.0 Bc
	7940.8	12.0 Ra	7969.7	11.9 Dh		7980.6	12.0 Wd	7987.8	11.9 Pk
	7944.7	11.7 Pt	7969.7	11.8 Ar		7980.6	11.9 Wp	7988.6	11.9 Rb
	7946.7	11.8 Pt	7969.7	12.0 Ra		7980.6	12.0 Wa	7988.6	11.9 Jo
	7947.7	12.0 Cm	7972.7	12.0 Ra		7980.6	12.0 Hf	7988.7	11.9 Ar
	7948.8	12.0 Pk	7973.8	11.8 Pk		7980.6	11.6 Rb	7988.7	12.0 Hv
	7949.8	12.0 Ra	7974.6	11.6 Wa		7980.7	12.0 Ko	7988.7	11.7 Pt
	7950.8	11.8 Me	7974.6	11.6 Wp		7980.7	11.9 Kn	7988.7	12.0 Bc
	7951.7	11.7 Pt	7974.6	11.6 Rb		7980.7	11.7 Ar	7988.8	11.9 Pk
	7952.9	12.0 Me	7974.7	12.1 Pb		7980.7	11.7 Pt	7988.8	12.1 Dh
	7953.7	11.5 Me	7974.7	11.9 Hf		7980.8	11.7 Dh	7989.6	11.9 Wa
	7954.7	11.7 Pt	7974.7	12.0 Pk		7981.6	11.8 Gy	7989.6	11.7 Ar
	7956.5	12.2 Fc	7974.7	11.8 Pt		7981.6	11.9 Rb	7989.6	11.9 Wp
	7956.6	12.0 Pb	7975.7	11.9 Dh		7981.6	12.0 Kn	7989.6	11.9 Wd
	7956.7	12.0 Ar	7975.7	12.1 Ra		7981.7	12.0 Pk	7989.6	11.9 Fl
	7956.7	12.0 Hv	7976.6	12.0 Wa		7981.7	11.8 Pt	7989.7	11.9 Rb
	7956.7	12.0 Bc	7976.6	11.9 Gy		7981.8	12.0 Cl	7989.7	11.9 Kn
	7956.8	12.0 Ra	7976.6	11.8 Kn		7982.5	12.2 Fc	7989.7	11.7 Kt
	7956.8	12.0 Cl	7976.7	11.8 Wp		7982.6	12.0 Hv	7989.8	11.8 Dh
	7956.9	11.8 Pt	7976.7	11.9 Hf		7982.6	11.9 Jo	7989.9	11.7 Pt
	7956.9	12.1 Me	7976.7	11.7 Ko		7982.6	11.9 Gy	7989.9	11.8 Ar
	7957.7	11.8 Pb	7976.8	11.9 Pk		7982.7	11.9 Dh	7990.6	11.9 Hf
	7957.7	11.9 Ar	7976.8	11.7 Ar		7982.7	12.0 Bc	7990.6	11.9 Wp
	7957.7	11.9 Dh	7976.8	11.7 Dh		7982.7	11.4 Rb	7990.6	12.0 Wa
	7957.8	12.0 Pk	7977.6	12.0 Wa		7982.8	11.9 Pk	7990.7	11.7 Pt
	7958.7	12.1 Me	7977.6	11.7 Ar		7983.6	12.0 Gy	7990.7	11.8 Ra
	7958.8	12.0 Ra	7977.6	12.0 Jo		7983.6	11.4 Rb	7990.7	12.0 Bc
	7960.7	12.2 Kn	7977.7	12.0 Hv		7983.7	11.8 Ra	7990.7	12.0 Hv
	7961.9	11.7 Pt	7977.7	11.9 Hf		7983.7	12.0 Pk	7991.6	12.0 Hf
	7962.8	12.0 Pb	7977.7	12.0 Bc		7983.7	11.7 Ar	7991.7	12.0 Me
	7962.8	12.0 Pt	7977.7	11.8 Lf		7983.7	12.0 Dh	7992.6	12.0 Bc
	7962.8	12.2 Dh	7977.7	11.7 Pt		7983.7	11.9 Gb	7992.7	12.0 Ar
	7962.8	12.0 Cl	7977.7	12.0 Kt		7983.8	12.0 Cl	7992.7	12.0 Hv
	7962.9	12.2 Ar	7977.7	11.7 Dh		7984.6	12.0 Jo	7992.7	11.9 Cl
	7964.5	12.3 Fc	7977.7	12.1 Pb		7984.6	11.9 Gy	7992.7	12.0 Kt
	7964.6	12.1 Wp	7978.2	11.9 Ch		7984.6	11.9 Rb	7992.8	11.8 Dh
	7965.4	12.5 Fc	7978.6	11.7 Ar		7984.6	12.0 Kn	7993.6	12.0 Wa
	7965.6	11.9 Jo	7978.6	12.0 Wd		7984.7	12.0 Pk	7993.6	11.9 Dh
	7965.7	12.2 Fd	7978.7	11.6 Mb		7984.8	11.6 Dh	7993.7	12.0 Bc
	7965.7	12.0 Dh	7978.7	11.5 Bb		7984.8	12.0 Ar	7993.7	12.0 Pk
	7965.7	12.1 Cm	7978.7	11.7 Pt		7985.6	11.9 Rb	7994.6	11.8 Wd
	7965.7	12.0 Ra	7978.7	11.5 Mg		7985.6	11.8 Jo	7994.7	11.9 Pk
	7965.8	11.9 Pt	7978.7	12.0 Pk		7985.6	11.8 Kn	7994.8	12.1 Cm
	7866.4	12.0 Fc	7978.7	12.0 Hv		7985.7	11.9 Pk	7995.6	12.0 Wa
	7967.6	11.9 Jo	7978.7	11.7 Gy		7985.7	11.7 Gy	7995.6	12.1 Wp
	7967.6	11.9 Wp	7978.7	12.0 Bc		7985.9	11.8 Me	7995.6	11.9 Jo

VARIABLE STAR OBSERVATIONS RECEIVED DURING JULY AND AUGUST, 1935.

Star	J.D.	Est.	Obs.	J.D.	Est.	Obs.
213843 SS CYGNI—						
	7995.7	11.7	Pt	8002.8	8.5	Lf
	7995.7	11.9	Pk	8002.9	8.4	Dh
	7996.6	11.9	Wp	8002.9	8.4	Ar
	7996.6	11.9	Wa	8003.6	8.5	Kn
	7996.7	12.2	Ar	8003.6	8.2	Ar
	7996.7	11.8	Bc	8003.7	8.3	Dh
	7996.7	12.0	Kt	8003.7	8.2	Kt
	7996.8	12.2	Dh	8003.7	8.8	Pt
	7997.6	11.9	Rb	8003.7	8.3	Bc
	7997.7	12.2	Dh	8003.8	8.3	Br
	7997.7	11.8	Pk	8003.9	8.4	Ar
	7997.7	11.7	Pt	8004.6	8.4	Jo
	7997.8	12.0	Cl	8004.6	8.5	Kn
	7997.9	12.0	Ar	8004.6	8.4	Gy
	7998.4	12.1	Be	8004.6	8.5	Pf
	7998.7	11.8	Bc	8004.6	8.4	Ar
	7998.8	11.9	Dh	8004.7	8.4	Hv
	7998.8	12.0	Ar	8004.7	8.4	Bc
	7999.7	12.0	Hv	8004.7	8.6	Cl
	7999.7	12.0	Bc	8004.7	8.5	Kt
	7999.7	11.9	Pk	8004.4	8.5	An
	7999.8	12.0	Pt	8004.9	8.5	Dh
	8000.7	12.0	Hv	8005.7	8.4	Mc
	8000.7	12.0	Bc	8005.7	8.2	Pk
	8000.8	11.8	Dh	8005.8	8.4	Br
	8000.9	11.7	Ar	8006.6	8.6	Kn
	8001.6	11.0	Wa	8006.6	8.1	Wa
	8001.6	11.1	Rb	8006.6	8.3	Hf
	8001.6	11.1	Wp	8006.6	8.2	Cm
	8001.6	11.1	Kn	8006.6	8.2	Rb
	8001.6	11.2	Kt	8006.6	8.2	Wp
	8001.6	11.1	Ar	8006.7	8.3	Cl
	8001.7	11.1	Rb	8006.9	8.2	Pg
	8001.7	11.1	Pf	8007.6	8.7	Ar
	8001.8	10.9	Dh	8007.6	8.3	Sq
	8001.9	10.9	Ar	8007.7	8.3	Pk
	8002.6	8.3	Hf	8007.7	8.4	Kt
	8002.6	8.3	Rb	8007.8	8.3	Dh
	8002.6	8.3	Wd	8008.4	8.5	An
	8002.6	8.4	Wa	8008.6	8.6	Ar
	8002.6	8.7	Jo	8008.6	8.3	Rb
	8002.6	8.4	Wp	8008.6	8.1	Cm
	8002.6	8.6	Pf	8008.6	8.5	Jo
	8002.6	8.6	Kn	8008.7	8.4	Pk
	8002.6	8.3	Cm	8009.4	8.3	An
	8002.7	8.8	Ar	8009.6	8.6	Ar
	8002.7	8.6	Bc	8009.6	8.7	Kn
	8002.7	8.9	Pt	8009.6	8.5	Bc
213843 SS CYGNI—						
	8009.6	8.6	Pf	8013.7	9.5	Kt
	8009.6	8.3	Rb	8013.7	9.4	Wa
	8009.6	8.4	Wd	8013.7	9.2	Pk
	8009.7	8.3	Kt	8013.7	9.7	Hf
	8009.7	8.4	Pk	8013.7	9.1	Kn
	8009.7	8.3	Hf	8013.7	9.4	Pt
	8009.7	8.8	Pt	8013.8	9.7	Br
	8009.8	8.3	Gy	8013.8	9.4	Dh
	8009.9	8.6	Dh	8014.6	9.8	Sh
	8010.4	8.6	An	8014.6	9.8	Wp
	8010.6	8.4	Kt	8014.6	9.8	Bc
	8010.6	8.8	Jo	8014.6	9.8	Wa
	8010.6	8.6	Cm	8014.6	9.7	Hv
	8010.6	8.6	Wd	8014.6	9.8	Wd
	8010.6	8.7	Rb	8014.6	9.8	Hf
	8010.6	8.6	Kg	8014.7	9.9	Ar
	8010.7	8.6	Dh	8014.7	10.1	Kt
	8010.7	8.6	Gy	8014.9	9.6	Dh
	8010.7	8.7	Ar	8015.4	9.8	An
	8010.7	8.4	Hf	8015.6	10.2	Rb
	8010.7	8.7	Kn	8015.6	10.3	Hv
	8010.7	8.7	Cl	8015.7	10.1	Dh
	8010.7	8.5	Cx	8015.7	10.5	Bc
	8010.7	8.8	Pt	8015.7	10.1	Pk
	8011.4	8.6	An	8015.7	10.1	Kn
	8011.6	8.5	Wp	8015.7	10.5	Pt
	8011.6	8.6	Wa	8015.8	10.6	Cm
	8011.6	8.8	Ar	8015.8	10.2	Ar
	8011.7	8.8	Kn	8016.6	11.9	Jo
	8011.7	8.6	Mc	8017.6	12.0	Jo
	8011.7	8.5	Hf	8018.6	11.5	Pf
	8011.7	9.2	Pt	8018.6	11.9	Kn
	8011.8	8.7	Dh	8019.6	11.5	Wa
	8012.3	8.6	An	8019.6	11.8	Rb
	8012.6	8.9	Ar	8019.7	11.6	Pt
	8012.6	8.8	Wd	8020.6	11.8	Wp
	8012.6	8.4	Cm	8020.7	11.7	Pt
	8012.7	8.7	Bc	8020.8	11.6	Cm
	8012.7	8.7	Pk	8021.6	11.7	Rb
	8012.8	8.9	Dh	8021.7	12.0	Jo
	8013.4	9.1	An	8022.6	11.9	Jo
	8013.4	9.2	Be	8023.6	11.9	Jo
	8013.6	9.3	Wp	8023.8	11.6	Ba
	8013.6	9.3	Bc	8024.6	12.0	Wa
	8013.6	9.6	Rb	8024.6	11.9	Wd
	8013.6	9.3	Hv	8024.6	12.0	Wp
	8013.7	9.2	Ar	8026.7	11.7	Pt

SUMMARY FOR JULY AND AUGUST, 1935.

Observer	Initial	Vars.	Observations	Observer	Initial	Vars.	Observations
Adamapoulos	Ap	22	31	Beck	Bv	1	1
Ancarini	An	4	36	Benini	Be	33	42
Armfield, L.	Ar	48	544	Blunck	Bu	29	62
Baker	Bp	1	5	Bouton	B	10	14
Baldwin	Bl	90	256	Brocchi	Br	6	8
Ballhaussen	Ba	31	81	Brockmeyer	Bk	5	9
Bappu	Bm	29	72	Brown, R.	Bb	6	19

SUMMARY FOR JULY AND AUGUST, 1935—Continued

Observer	Initial	Vars.	Observations	Observer	Initial	Vars.	Observations
Brown, S. C.	Bs	22	54	Loepfe	Lf	5	9
Buckstaff	Bc	22	286	London	Lo	3	3
Callum	Cl	20	43	Loreta	Lt	36	130
Cameron	Ca	7	10	Luechinger	Lr	9	9
Campbell	C	1	4	Meek	Me	26	61
Chandra	Ch	97	128	Mennella	Mn	14	42
Chartier	Cr	7	8	Millard	Md	32	119
Christman	Cm	87	244	Miller	Mw	12	20
Cox	Cx	9	20	Monnig	Mg	5	24
Czerniejewski	Cz	2	2	Morse	Mb	2	7
Dafter	Df	7	44	McLeod	Mc	33	116
Dalton	Dt	7	16	Oklahoma U.	OK	7	9
Diedrich	Dh	35	368	Peck	Pb	9	35
Doolittle	Dl	28	179	Peltier	Pt	211	699
Ellis	Es	35	106	Perkinson	Pk	12	124
Ensor	En	61	158	Popkavich	Pv	2	7
Focas	Fc	101	326	Preucil	Pf	10	22
Ford, C. B.	Fd	18	18	Purdy	Pg	11	19
Franklin	Fl	1	5	Raphael	Ra	43	130
Friton	Fn	17	56	Recinsky	Rc	19	139
Gaebler	Gb	5	5	Reynolds	Rl	5	15
Gregory	Gy	96	244	Rosebrugh	Rb	40	158
Halbach	Hk	9	10	de Roy	Ry	8	86
Hamilton	Hm	29	347	Salanave	Sx	27	85
Hartmann	Hf	104	349	Sasabe, B. M.	SE	2	2
Heines	Hh	10	20	Sasabe, S.	SS	5	29
Hildom, A.	Hi	25	110	Seely	Sa	8	92
Holt	Hb	16	29	Shinkfield	Sl	24	70
Houghton	Ht	84	335	Shultz	Sz	19	21
Howes	Hv	22	344	Sidoff	Sv	3	3
Huruhata	Hr	4	6	Smiley	St	1	11
Jansen	Je	7	9	Smith, L.	Sh	12	16
Jones	Jo	144	779	Smith, F. P.	Sq	20	30
Kaho	Ka	1	5	Smith, F. W.	Sf	20	46
Kanda	Kd	13	132	Stosick	Sc	3	4
Katz	Kv	2	2	Thomas	To	1	4
Kernan	Ke	3	3	Treadwell	Td	4	41
Keuziah	Ku	1	1	Wade	Wh	7	8
King	Kg	16	70	Walton	Wu	9	10
Kirkpatrick	Kp	13	129	Watson	Wa	52	196
Knott	Kt	11	75	Webb	Wd	55	156
de Kock	dK	23	208	Weiss	Wv	1	31
Kohman	Ko	7	10	Williamson, A.	Wg	6	7
Koons	Kn	70	120	Williamson, D.	Wm	8	10
Kotsakis	Ks	41	86	Woods	Wp	39	187
Lacchini	L	10	32				
				Totals		105	481	9757

tween June 15 and August 19; with 660 on Nova Herculis; 566 on R Coronae Borealis; 400 on SS Cygni, and 386 on R Scuti.

Nova Herculis has apparently reached its highest point at its secondary maximum, slightly above the seventh magnitude, and we should now expect a rather steady decline in light. The Nova may be readily oberved with the "b" type chart. R Coronae Borealis has attained a magnitude slightly above seven.

The twenty-fourth annual meeting of the Association will be held at the Harvard Observatory, in Cambridge, on Saturday, October 19, 1935.

September 7, 1935. LEON CAMPBELL, Recorder.

Comet Notes

By G. VAN BIESBROECK

COMET 1935 *b* (JACKSON). Little is to be added to the information given on p. 455 concerning this faint comet. Its presence was recorded here the last time on August 5 when it showed a small coma reduced to magnitude 16. The period of visibility has, therefore, lasted only 47 days. There is, however, the possibility that when the computations are available the object might be located on plates taken last summer.

COMET 1935 *c* (COMAS SOLÁ) PERIODIC 1927 III. As was expected this comet was recovered in the first half of August. It was first found on plates exposed by H. Jeffers at the Lick Observatory. The telegraphic announcement gave the following information:

1935 Aug. 12.4757 R.A. $6^h\ 32^m\ 11^s.0$ Decl. $+25°\ 9'\ 2''$ Mag. 14,

which showed that the date of perihelion is 1935 Oct. 6.6, only 1.7 days earlier than that resulting from Miss Vinter Hansen's careful discussion of the measures in 1927. At Williams Bay plates had been taken for the search on August 9 and 11 under favorable circumstances. After the announcement was received the plates were examined and the image of the comet was found at once. During August and September the brightness has increased to about 13^M and the comet has been characterized by a short tail in a direction opposite to that of the sun. L. E. Cunningham at Cambridge, Massachusetts, has given the following corrected ephemeris (Harvard Announcement Card):

1935 U.T.	α h m	δ ° ′	Mag.
October 5.0	9 5.9	+24 10	13.3
13.0	9 27.9	23 29	13.2
21.0	9 49.3	22 44	13.2
29.0	10 10.0	21 55	13.1
November 6.0	10 29.8	21 7	13.1
14.0	10 48.7	20 19	13.1
22.0	11 6.6	19 36	13.1
30.0	11 23.3	+18 56	13.1

It will be seen that the object remains a morning object and reaches its maximum brightness in November.

This is the first return of this periodic comet which now becomes a well-identified permanent member of the solar system.

COMET 1935 *d* (VAN BIESBROECK). Just as two months earlier Jackson discovered a faint comet on plates exposed for the study of asteroids the writer came across a somewhat similar object on plates taken here August 21. In July plates made with the 24-inch reflector at Williams Bay for recording the asteroid Odysseus of the Trojan group had revealed the presence of an additional faint asteroid which seems to be new. In following the latter in August a diffuse moving object of magnitude 14 was noticed in its vicinity and recognized at once as that of an unexpected comet. The figure shows the appearance of both the sharp image of the asteroid for which the plate was taken and the diffuse trail of the comet only 8′ away from it on the night of discovery. The announcement was not made until the comet had been confirmed visually with the 40-inch refractor the following night. This showed a round coma some 20″ in diameter with a 15^M stellar

nucleus when seen under favorable conditions. The following data were then transmitted telegraphically:

1935 Aug. 21.1354 R.A. $19^h\ 41^m\ 36^s.7$ Decl. $-17°\ 23'\ 4''$ Mag. 14
Daily motion 44^s west and $6'\ 30''$ north.

The motion was slow and it took a good while before the orbit could be determined with some degree of accuracy. The distance proved to be so large that elements deduced from short intervals of time were quite illusory.

COMET 1935 *d* AND FAINT ASTEROID, ON AUGUST 21, 1935

The following two sets of elements come evidently near to the true orbit:

Computer Van Biesbroeck	Swanson and Popper (Berkeley)
T = 1936 May 12.90 U.T.	T = 1936 May 26.78 U.T.
ω = 45.2391	ω = 49.757
Ω = 299.6515	Ω = 299.637
i = 65.9791	i = 64.580
q = 4.02928	q = 3.85106
e = 1.00	e = 1.03101
Dates used: Aug. 21, Aug. 29, Sept. 7	Dates used: Aug. 23, Aug. 29, Sept. 4

In establishing the above elements I found a residual O. — C. of $-2''.8$ and $-1''.6$ in the coördinates for the middle date. When removing these residuals by a general solution the eccentricity came out 1.025 but at the same time I noticed that a change of as little as 1″ in the middle date corresponded to a change of five

days in the perihelion passage. Although further corrections will be required I used the parabolic solution for the following ephemeris:

EPHEMERIS OF COMET 1935 *d*.

1935 0^h U.T.		α h m s	δ ° ′	—Distance from— Earth	Sun
October	1	19 23 44	—12 59.6	4.12	4.46
	5	23 30	12 35.0		
	9	23 32	12 10.5	4.22	4.43
	13	23 49	11 46.1		
	17	24 20	11 21.8	4.32	4.40
	21	25 6	10 57.5		
	25	26 5	10 33.1	4.42	4.38
	29	27 18	10 8.6		
November	2	28 42	9 44.0	4.52	4.35
	6	30 18	9 19.1		
	10	32 5	8 53.8	4.61	4.33
	14	34 3	8 28.3		
	18	36 10	8 2.3	4.70	4.30
	22	38 26	7 35.9		
	26	40 51	7 8.9	4.78	4.28
November	30	19 43 24	— 6 41.3		

Swanson and Popper's results differ from this by 5 sec and 1′.1 on October 5. Dr. Maxwell sent an ephemeris deduced from a shorter arc (August 21 to 27) but his prediction is evidently less accurate.

Theoretically the brightness is slightly decreasing this fall. It has not changed much by September 7. During October the comet moves slowly northward from Sagittarius, in which it was discovered, into Aquila. It will be lost in the evening sky in December. Next spring it will become visible again, this time as a morning object and it will remain well placed for northern observers all through next summer when maximum brightness is expected. But the distance will remain large and the object will always be faint. The orbit is remarkable for the very large perihelion distance $q = 4.03$. Only two other comets are known with larger values for that element: Comet Schain 1925 VI ($q = 4.18$) and the exceptional periodic comet Schwassmann-Wachmann 1925 II ($q = 5.50$). The present value is practically the same as that of comet 1729 with $q = 4.05$.

Several periodic comets will come under observation this fall: aside from Comet Coma Solá which was mentioned above and is now 1935 *c*, there will be COMET SCHWASSMAN-WACHMANN 1929 I which was already found last year; it emerges slowly from the daylight and will probably be seen in the morning sky in October.

COMET SCHAUMASSE (1927 VIII) which came to perihelion in September may be looked for, also in the morning sky, at the end of October.

The *Handbook of the British Astronomical Association* gives the necessary ephemerides for these various object all of which will be faint and visible only under difficult conditions.

Williams Bay, Wisconsin, September 20, 1935.

Zodiacal Light Notes

By FRANKLIN W. SMITH

The morning Zodiacal Light is again in a favorable position for observation from points in the northern hemisphere. On September 8 at 3:30, E.S.T., it was

seen extending upward from Cancer, which was then just on the horizon, to the boundary between Gemini and Taurus where it was lost in the greater brightness of the Milky Way. The light cone was symmetrically placed with respect to the ecliptic; the northern edge passed approximately through ϵ and κ Geminorum and north of γ Cancri, while the southern edge passed from between ξ and λ Geminorum toward α Cancri. The point at which the light cone mingled with the Milky Way was at an elongation of about 65° from the sun. Although the inner portions of the Zodiacal Light are brighter than the Milky Way, the brightness falls off rapidly with increasing elongation and even at 65° it cannot be distinguished when projected against that background.

The evening Zodiacal Light is still beyond the reach of northern observers because of the small angle between the ecliptic and horizon after sunset, but the Gegenschein is now favorably situated.

407 Scott Avenue, Glenolden, Pennsylvania, September 17, 1935.

Notes from Amateurs

Amateur Telescope Makers of Chicago

The Amateur Telescope Makers of Chicago met at The Adler Planetarium and Astronomical Museum, Chicago, on Sunday afternoon, August 4.

George E. Warner spoke on "Pitch and Wax Laps" and "The Use of Small Polishers." Mr. Warner has used a 6-inch tool on a nmuber of 10-inch mirrors and finds that it works as fast and is more easily controlled than the standard size tool. A discussion followed in which many questions were answered regarding laps. Mr. Warner favors pitch laps and many of the members will be benefitted by the hints he gave us on how to make them.

On Saturday afternoon, August 10, a number of the members attended a meeting of the American Meteor Society, in the Adler Planetarium. Dr. C. P. Olivier, President, described the work and gave a short history of the Society. An interesting discussion followed which included talks by Mr. Armfield and Mr. Halbach of the Milwaukee contingent.

The same evening we met at the home of Edwin P. Martz, Jr., in Oak Park for an observing party. There were seven telescopes on hand, including one 6-inch F 15 mirror by Mellish which Mr. Martz has mounted and is going to use on planetary work. The night was cloudy but we did get a few looks through the instrument and it functions splendidly. Our Milwaukee friends were present at this meeting also. Their well-directed energy and enthusiasm sets a splendid example to our group.

WM. CALLUM, *Secretary.*

1319 W. 78th Street, Chicago, August 15, 1935.

General Note

Professor Ejnar Hertzsprung has been appointed director of the Leyden Observatory, as successor to Professor Willem de Sitter. At the same time Professor J. H. Oort was appointed assistant director.